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Umma Texts Concerning Reed Mats

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Reed mats, Sumerian *kid*, belonged to the essential equipment of boats. B. Meissner stated the salient facts forty years ago in MVAG XII 3 (1907) 20ff. A. Salonen in his book 'Die Wasserfahrzeuge in Babylonien' (SC VIII 4, 1939) 120ff. has added significant details.

My taking up the subject anew is due to the circumstance that preoccupation with large collections of Umma tablets has shown me that a considerable percentage of them - actually up to 5% - deals with reed mats. The previous publications do not reflect this situation; in fact only relatively few such texts have ever been published. It is the purpose of this article to make up for this unjustified omission by the publication of an adequate number of such tablets and to further their interpretation by a discussion of the principal data which they present.

On formal grounds the material can be divided into two groups.

The first group is characterized by the verb *šu.ba-ti* "he took into possession". Texts of this group contain the following items:

(a) the material involved in the transaction, its number and its size;
(b) the source from which it came: *ki.*X-*ta*;
(b) the person who took possession of the material: Y *šu.ba-ti*;
(d) the person who sealed the document: *kišib* Z;
(e) the date of the transaction.

Item (d) is omitted in numerous cases, although all the tablets bear the impression of a seal.

The second group, by far more numerous than the first, contains no verb at all and also seems to omit mention of the person who received the material. On the other hand tablets of this group usually state the purpose for which the material was intended. They are thus made up of the following items:

(a) the material involved in the transaction, its number and its size;

(b) the purpose for which it was intended: .....-*še* or infinitive in .....-*(e)de*;

(c) the source from which it came: *ki*.X-*ta*;

(d) the person who sealed the document: *kišib* Z;

(e) the date of the transaction.

In any transaction the person who received the material in question ought to be essential. Hence, it is necessary to assume that the second group of tablets contains records of the very office which received that material. This assumption is confirmed by the fact that in such circumstances the purpose for which the material was received is especially significant. At the same time, it implies that the first group of tablets concerns deliveries to certain individuals, not to an office.

For the sake of convenience I first tabulate on the following pages in chronological order the essential data which the tablets contain. I shall then proceed to a detailed discussion of these data.

For the correct understanding of the tabulation, note the following. In the first column ("signature"), the abbreviations NBC, YBC and NCBT refer to the various Yale collections, PTS to the collection in the Princeton Theological Seminary, UIOM to that in the Oriental Museum of the University of Illinois in Urbana. The abbreviation Strbg means Strasbourg, the tablets in question having been published by N. Schneider in An. Or. 1; Monts. means Montserrat and refers to the same author's publication in An. Or. 7. The other abbreviations are contained in the list of abbreviations of the JCS. An asterisk preceding a signature indicates that the respective tablet is published with this article.

In the column headed by "No.", no mark after the numeral signifies that the tablet deals with *gi.kid.nir(r)um*, an asterisk that it deals with *gi.kid.šú.má*, a circle that it deals with *gi.kid.dagal*, and an obelus that it deals with plain *gi.kid*.

In the column marked "Size" a plus means that the purpose for which the material is intended is indicated.

The dates are given in accordance with Ungnad's article 'Datenlisten' in the Reallexikon der Assyriologie[1]. A plus sign after a date refers to the use of an *ús-sa* date provided that it was used only for the earlier part of a particular year.

1 I.e. the years of Šulgi given in this article are probably one year too high. See G. G. Hackman BIN V p. 4; Th. Jacobsen, Sumerian King List 122 note 321.

Group I

Signature	No.	Size	ki. .....-ta	šu.ba-ti	Kišib	Actual seal	Date	
NBC 9562	2†	⅓ sar-ta	Ur.sig$_5$	Lugal.^{giš}gigir-re	—	Lugal.^{giš}gigir-re d.s.	tal	Š33+
*NBC 3056	2	⅔ sar 10 gín	Šeš.kal-la	Dingir-ra	—	Dingir-ra d.s.	tal	Š37
NBC 1344	2	⅔ sar	Šeš.kal-la	hù-ga-ni	—	illegible	šu.numun	Š37
YBC 12526	2	⅔ sar	Šeš.kal-la	Saq.x-ni	—	Saq.x-ni má.lah$_4$	—	Š38
YBC 12225	2	⅔ sar	Šeš.kal-la	Dingir-ra	—	Dingir-ra d.s.	tal	Š39
Nik.II 227	2*	⅓ (sar) 4 gín	Šeš.kal-la	Kù-ga-ni	—	Kù-ga-ni d.s.	šà.bal	Š39
NBC 1522	1*	—	Šeš.kal-la	Kù-ga-ni	—	Kù-ga-ni d.s.	šu.numun	Š39
NBC 1510	2	⅓ sar-ta	Šeš.kal-la	Ur.^{d}Nin.šubur	—	Ur.^{d}Nin.šubur d.s.	šu.numun	Š41
YBC 1021	1	⅓ sar	Šeš.kal-la	Lugal.KA.gi-na	—	Lugal.KA.gi-na d.s.	min.èš	Š43
*PTS 453	3*	½ sar +	—	^{d}Utu.usum.gal	Ì-hál-la	Ì-hal-la d.s.	šà.bal-a	Š47
NBC 5262	2*	—	Lú.igi.sa$_6$.sa$_6$	Ur.ab-ba	—	Ur.ab-ba d.s.	šà.bal.a	Š47
*NBC 1464	1	18 gín +	Lú.igi.sa$_6$.sa$_6$	Ur.^{d}Šará	—	Ur.^{d}Šará d.s.	—	Š47
*NBC 3084	1		Ur.^{d}Šará	A-tu	ensi	Ur.^{d}Lisi	^{d}Lisi	RS6
Str by 256	2	⅓ sar +	—	Lú.^{d}En.lil-la	—	Lugal.si.NE d.s.	—	RS6
*NBC 5261	5	1⅔ (sar) +	—	^{d}Utu.usum.gal	Ì-hal-la	illegible	^{d}Lisi	RS8
*NBC 4281	1	⅔ sar +	Lú.ib.gal	Lugal.KA.gi-na	—	Lugal.KA.gina d.s.	tal	ŠS1
Str by 155	2	⅔ sar	A-gu	Tab.ša-la	—	illegible	min.èš	ŠS1
*NBC 2950	3*	—	A-gu	Kal.^{d}Ga-da	Lú.hal-la	Lú.hal-la d.s.	šà.bal-a	ŠS2
*PTS 1192	1	⅓ sar	A-gu	Nig.si-e	Na-ba-sa$_6$	Na-ba-sa$_6$	—	ŠS2+
YBC 11823	1	⅓ (sar)	A-gu	UD-ga.ì-x	Ad-da.hal-la	Ad-da.hal-la	múrub	ŠS3
*UIOM 7123	1†	15 gín	A-gu	A-x	—	illegible	^{d}Dumu.zi	ŠS3
UCP IX/2 II 7	1	⅓ sar	A-gu	hù-ga-ni	Ur-ŠUL	illegible	tal	ŠS3+
*PTS 554	—	½ sar +	Lú.ib.gal	Lugal.hù-ga-ni & him.^{d}Šará	—	him.^{d}Šará	—	ŠS3+
Fish, Cat. 742	2	⅔ sar	A-gu	Ab-ba.gi-na	Lú.^{d}Šará	Lú.^{d}Šará	—	ŠS5+
*YBC 12536	2	— +	ku-le	Ur.^{d}Hal.mu-du	—	Ur.^{d}Hal.mu-du d.s.	šà.bal	ŠS6
*UIOM 8832	2†	—	Šeš-a-ni	Lugal.ezen	—	?	é.itu.o šà.bal-a	—

Group II

Signature	No	Size	ki.....-ta	kišib	Actual seal	Date	
NBC 10006	5	⅔ sar	Šeš.kal-la	Ur.giš gigir	Ur.giš gigir d.s.	—	Š 35
*YBC 13364	1*	+	Lú.kal-la	Dingir-ra	Dingir-ra-kam d.s.	márub	Š 36
NBC 264	3	? +	Lú.kal-la	Na-DI	Ur.dSîn d.s. dumu Na-DI	márub	Š 36
NBC 3103	2	⅔ sar	Lú.kal-la	Dingir-ra	Dingir-ra-kam d.s.	šu.numun	Š 36
NBC 1429	2	+	dUtu.ušum.gal	Ur.dŠará	Ur.dŠará gá.dub-ba	šà.bal-a	Š 41
NBC 2319	4	1⅓ sar	Ìr	A-gu-a	A-gu-a d.s.	šà.bal-a	Š 43
*NBC 676	107	—	Lú.ib.gal	Da-gi-mu	?	—	Š 43
NBC 4189	5	1⅔ sar	Lú.igi.sa_6.sa_6	Šeš.kal-la	Šeš.kal-la d.s.	pap.ú.e	Š 47
*PTS 1274a	2	1⅓ sar +	Lú.igi.sa_6.sa_6	Ur-zu	Ur.zu d.s. zíd-da	diri	Š 47+
b	1	⅚ sar +					
*NBC 5240	4	1 sar 7 gín +	Lú.igi.sa_6.sa_6	Ur.lugal	Ur.lugal d.s.	diri	Š 48
NBC 3021	3*	⅔ sar 5 gín	Lú.igi.sa_6.sa_6	Ur.dŠakan	Ur.dŠakan d.s.	šà.bal-a	Š 48
NBC 7236	8	3 sar	Lú.igi.sa_6.sa_6	Lú.dingir-ra	Lú.dingir-ra d.s.	nam.šà.tam	Š 48
NBC 498	2	⅚ sar	Ur.dŠul.pa.è	Ur.dNin.tu	(illegible)	dDumu.zi	Š 49
YBC 12533a	2?	⅔ sar		Lú.dSîn	Lú.dSîn d.s.	min.èš	BS 2
b	2*	⅓ sar					
*YBC 7617	1†	15 gín +	A-gu	Lú.hé.gál	Lú.hé.gál d.s.	pap.ú.e	BS 4
*NBC 3500b	3†	1 sar 3 gín +		Lú.kal-la	Lú.kal-la d.s.	—	BS 4
c	6	1½ sar +					
d	1†	⅔ sar +					
*NBC 3307a	8	⅔ sar +	A-gu	Lú.uru-mu	illegible	siq_4 giš i.šub.gar	BS 4+
*YBC 12518	2	⅔ sar +	A-gu	Hu-wa-wa	illegible	é.itu.6	BS 5
*UIOM 571	2	⅔ sar +	A-gu	A-DU	illegible	é.itu.6	BS 5
Monts. 207	1	14½ gín	Ur.dŠul.pa.è	In.[sa_6.sa_6]	illegible	dLisi	BS 5
*UIOM 598	4	2 sar +	A-gu	Na-ba-sa_6	illegible	(Kaš.dé-a-šè)	BS 5
*PTS 1213	4	1⅓ sar +	Ur.é.diri	A-gu	A-gu d.s.	šà.bal-a	BS 6
YBC 12532	1	½ sar +	A-gu	Lú.dEn.lil-lá	dŠará.an.dùl d.s.	šà.bal-a ud.3-kam	BS 6

*YBC 12544a	2*	½ sar +	A-gu	Lugal-e.ba-an-sa$_6$	Lugal-e.ba-an-sa$_6$ d.s.	—	BS 6
b	3*	½ sar +					
c	7*	1½ sar +					
*YBC 921	5°	3½ sar 5 gín +	A-gu	Lugal.ner.gál	Lugal.ner.gál	—	BS 6
*YBC 466	18*	1½ sar +	—	Nig.si-e	(illegible)	é.itu.6	BS 6
NBC 1367	4	1⅓ sar	Ur.dŠul.pa.è	In.sa$_6$.sa$_6$	In.sa$_6$.sa$_6$ d.s.	šu.numun	BS 8
*UIOM 529	4	1⅓ sar +	Ur.dŠul.pa.è	Lú.uru	Lú.uru	šu.numun	BS 8
NBC 2852	1	⅓ sar	Ur.dŠul.pa.è	Lú.dingir-ra	Lú.dingir-ra d.s.	ezen Bur-dŠu	BS 8
NBC 2993	4	1⅓ sar	Ur.dŠul.pa.è	Ur.gi$_6$.pàr	Ur.gi$_6$.pàr d.s.	šà.bal-a	BS 8
*UIOM 7352	2*	⅔ sar +	Ur.dŠul.pa.è	dLAGAB×ḪA.ì-zu	(illegible)	šà.bal-a	BS 8
*NBC 2896	4	1⅓ sar +	Ur.dŠul.pa.è	Ur.dAm.nà-a	Ur.dAm.nà-a d.s.	—	BS 8
*NBC 2995	2	⅓ sar-ta +	Ur.dŠul.pa.è	Inim.dŠará	Inim.dŠará d.s.	—	BS 8
*PTS 319	2*	13⅓ gín	Ur.dŠul.pa.è	Lugal.ner	Lugal.ner	—	BS 8
NBC 3009	3*	½ sar	A-gu	Lú.dNin.šubur	Lú.dNin.šubur d.s.	—	BS 8
YBC 12530	1	⅓ sar	A-gu	A-DU	Ku-le d.s.	—	BS 8
NBC 3248	1	⅓ sar ?	Ba-za	Lú.bal.sig$_5$	Lú.bal.sa$_6$ d.s.	šu.numun	BS 9
*YBC 12534a	2	⅓ sar-ta +	Ur.dŠul.pa.è	Ì-kal-la	Ì-kal-la d.s.	šà.bal-a	BS 9
NBC 5167 b	1*	10 gín	Ur.dŠul.pa.è	Ì-kál-la	Ì-kal-la d.s.	šà.bal-a	BS 9
NBC 1497	2*	⅓ sar	Ur.dŠul.pa.è	A-DU	A-DU d.s.	šà.bal-a é.itu.6	—
NBC 1855	1*	⅓ sar	A-gu	In.sa$_6$.sa$_6$	In.sa$_6$.sa$_6$	—	BS 9+
*NBC 3246	4	1⅓ sar +	A-gu	Ḫu-wa-wa	Lú.ib.gal d.s.	šu.numun-na	ŠS 1
Str 69 153	4	1⅓ !? sar	A-gu	Šeš.ki.ág	(illegible)	šu.numun	ŠS 1
*NBC 1772	–	⅓ (sar) +	Lú.ib.gal	Abba.gi-na	Ab-ba.gi-na d.s.	šu.numun	ŠS 1
*YBC 12520	1	½ sar 6 gín +	Lú [ib.gal]	Nig.ú-rum	Nig.ú-rum d.s.	šu.numun	ŠS 1
NBC 1349	6	½ sar-ta	Ur.dŠul.pa.è	Lú.bal.sig$_5$	Lú.bal.sa$_6$ d.s.	min.èš	ŠS 1
*NBC 319	2	⅓ sar +	Lú.ib.gal	Ur.gišgigir and Lú.dNin.šubur	Ur.gišgigir d.s.	min.èš	ŠS 1
YBC 12540	1	⅓ sar	Ba-za	Ur.dUr.BAR.TAB	Ur.dUr.BAR.TAB d.s.	min.èš	ŠS 1
*PTS 761	2	⅔ sar +	Ba-za	É.gal-e.si	(illegible)	min.èš	ŠS 1
*UIOM 3672	2	⅔ sar 2 gín-ta	—	Lú.sa$_6$.ì-zu	Lú.sa$_6$.ì-zu	min.èš	ŠS 1

b	1	½ sar +					
*UIOM 556	1*	(kù-bi 10 gín)+	Baza	Ur. ^{d}Šul.pa.è	Ur. ^{d}Šul.pa.è d.s.	šà.bal-a é.itu.6	ŠS1
*PTS 1210	2*	⅓ sar	A-gu	^{d}Šará.hé.gál	^{d}Šará.hé.gal d.s.	šà.bal-a é.itu.6	ŠS1
NBC 2849	1*	12 gín	A-gu	Ù-ma-ni	Ù-ma-ni d.s.	šà.bal-a	ŠS1
*NBC 3221	1*	10 gín +	A-gu	Lugal-e.ba-an-sa$_6$	(illegible)	šà.bal-a	ŠS1
*YBC 12539	1*	10 gín +	A-gu	Lu.igi.sa$_6$.sa$_6$	(illegible)	šà.bal-a	ŠS1
*ABC 2070	2	⅔ sar +	—	Ur.gi$_6$.pàr	Ur.gi$_6$.pàr d.s.	šà.bal-a	ŠS1
NBC 2813	2*	—	A-gu	Lugal-e.ba-an-sa$_6$	Lugal-e.ba-an-sa$_6$ d.s.	šà.bal-a	ŠS1
*ABC 2963	4*	—. +	—	Lugal-e-ba-an-sa$_6$	Lugal-e.ba-an-sa$_6$ d.s.	šà.bal-a	ŠS1
YBC 12527	2*	— +	—	(gìr Ḫu-ba QA.ŠU.PU$_8$)	× d.s.	šà.bal	ŠS1
*PTS 986	3	1 sar +	A-gu	Gìr ^{d}Šará.è-dib	(illegible)	bal-šè	ŠS1
*PTS 630a	3	1 sar 10 gín+	A-gu	Lugal.ezen	(illegible)	bal-2-šè	ŠS
b	3	1 sar +					
*ABC 948	2	⅔ sar +	A-gu	Lugal.núg.si-e	Lugal.si.NE-x d.s.	—	ŠS1
NBC 1362	5	× sar	A-gu	Lugal.núg.si-e	Lugal.si.NE-x d.s.	—	ŠS1
*NBC 1836	6	2 sar +	A-gu	Lú. ^{d}Sîn	Lú. ^{d}Sîn d.s.	—	ŠS1
*NBC 2031	1	⅓ sar	A-gu	Gìr-ni	Lugal-e.ba-an-sa$_6$	—	ŠS1
*NBC 2687	4°	3⅓ sar +	A-gu	Lugal.kù.zu	Lugal.kù.zu d.s.	—	ŠS1
YBC 12524	4	— +	[A-]gu	Ur.Lugal and Lú.bal.sig$_x$	Ur.lugal	—	ŠS1
*UIOM 747	2	⅔ sar +	A-gu	Kù-ga-ni	Kù-ga-ni d.s.	—	ŠS1
*PTS 1197	3	1 sar 10 gín+	A-gu	É.gal.e.si	(illegible)	—	ŠS1
*PTS 1219	1	⅓ sar	Ur. ^{d}Šul.pa.è	Ur. ^{d}Šará	Ur. ^{d}Šará d.s.	—	ŠS1
NBC 1436	2	⅓ sar-ta	Ba-za	Ur. ^{d}Ùr.BAR.TAB	Ur. ^{d}Ùr.BAR.TAB d.s.	—	ŠS1
NBC 3070	1	½ sar	Lugal.hé.gál	Ab-ba.gina	Ab-ba.gi-na d.s.	—	ŠS1
*PTS 866	2	⅔ sar +	—	Ur.gi$_6$.pàr	Ur.gi$_6$.pàr d.s.	—	ŠS1
*NBC 1485	–	1⅔ sar +	A-gu	Ḫu-da-ti	(illegible)	tal	ŠS2
*NBC 5151	1	½ sar +	A-gu	Lugal.itu-da	(illegible)	šu.numun	ŠS2
*YBC 12519	4	1⅓ sar +	A-gu	Ur. ^{d}Am.an-ha	(illegible)	šu.numun	ŠS2
*PTS 485	1	15 gín sar+	Lú.ib.gal	Inim. ^{d}Šará	Inim. ^{d}Šará	šu.numun	ŠS2

*NBC 2839	1	⅔ sar 5 gín +	A-gu	Da-du-mu	Da-du-mu	min. èš	ŠS2
*NBC 3208	4	1⅓ sar +	A-gu	^{d}Šará-ham	^{d}Šará-ham d.s.	šà.bal-a	ŠS2
*NBC 5127	4	– +	Lú.uš.gi-na	Šuhhal-ni	(illegible)	á-hi-ti	ŠS2
BIN V 83	2	⅔ sar +	—	Lú.^{d}Nin.šubur	Lú.^{d}Nin.šubur d.s.	šà.bal-a	ŠS2
Strbg 160	2	⅓ sar 5(gín)+	A-gu	Bí-dúg-ga	Bí-dúg-ga d.s.	—	ŠS2
YBC 12543	4	1⅓ sar	A-gu	ḫ-sa$_6$.sa$_6$	ḫ-sa$_6$.sa$_6$ d.s.	—	ŠS2
*NBC 3085	2	⅔ sar +	A-gu	^{d}Šará.a-mu	^{d}Šará.a-mu	—	ŠS2?
NBC 5196	6	2 sar	A-gu	ḫim.^{d}Šará	ḫim.^{d}Šará d.s.	tal	ŠS2+
*NCBT 1652	1	⅓ sar +	A-gu	A-ḫal-la rá-gab	A-a-ḫal-la rá.gab	tal	ŠS2+
*PTS 553	4	1 sar 10 gín+	A-gu	Ù-ma-ni	Ù-ma-ni d.s.	šu.numun	ŠS2+
*UIOM 623	10	⅚ sar	A-gu	Lú.sa$_6$.è-zu	(illegible)	še.KIN.ḫud	ŠS2+
*NBC 575	2	⅔(sar) +	A-gu	Lugal.nug.si-e	Lugal.si.NE-x d.s.	—	ŠS2+
*NBC 1388	1	⅓ sar +	A-gu	^{d}Utu.sig$_5$	(illegible)	—	ŠS2+
NBC 1775	1	⅓ sar	A-gu	Na-ba-sa$_6$	Na-ba-sa$_6$	—	ŠS2+
*NBC 2922	4†	⅔ sar +	A-gu	Lugal-e.ba-an-sa$_6$	Lugal-e.ba-an-sa$_6$ d.s.	—	ŠS2+
NBC 3462	1	⅓ sar	A-gu	Na-ba-sa$_6$	Na-ba-sa$_6$	—	ŠS2+
*YBC 12522	4	1⅓ sar +	A-gu	A.kal-la	A.ḫal-la	—	ŠS2+
*NBC 671	6*	1 sar +	A-gu	Lugal-e.ba-an-sa$_6$	Lugal-e.ba-an-sa$_6$ d.s.	diri	ŠS3
YBC 12535	2*	⅓ sar +	A-gu	Lugal-e.ba-an-sa$_6$	(illegible)	šà.bal-a	ŠS3
YBC 12538	1*	–	A-gu	Lugal-e.ba-an-sa$_6$	(illegible)	šà.bal-a	ŠS3
*NBC 1856	4*	– +	A-gu	Ur.^{d}Šará	Ur.^{d}Šará d.s.	šà.bal-a	ŠS3
*PTS 1339	11*	– +	–	Kù.sa$_6$	(illegible)	ša.bal	ŠS3
*UIOM 769	8	3⅔ sar +	A-gu	Lú.^{d}Túg.an-ha	(illegible)	—	ŠS3
*YBC 993 a	2	⅚ sar +	A-gu	Ad-da.kal-la	Ad-da.ḫal-la	múrub	ŠS3+
b	2	⅚ sar					
YBC 11844	1	⅓ sar	A-gu	A-ulu-mu	Ur.^{d}Sîn d.s.	še.kar.gál-la	ŠS3+
*YBC 65	4	1 sar 10 gín +	A-g[u]	A-DU	A-DU d.s.	tal	ŠS3+
*YBC 11834	1†	12 gín +	A-gu	Ìr.^{d}Šará	Ìr.^{d}Šará d.s.	tal	ŠS3+
*YBC 11716	2	1⅓ sar +	A-gu	ḫ-sa$_6$.sa$_6$	ḫ-sa$_6$.sa$_6$	tal	ŠS3+

*NBC 1501	2	⅔ sar +	Lú.ibgal	Lú.gi-na	Lú.gi-na d.s.	tal	ŠS3+
*NBC 1831	1	½ sar +	Lú.ib.gal	Lú.dŠará	Lú.dŠará d.s.	tal	ŠS3+
*YBC 12523	6*	–	A-gu	Lugal-e.ba-an-sa$_6$	Lugal-e.ba-an-sa$_6$ d.s.	šà.bal	ŠS3+
Nik.II 226	10*	12 ma.na +	A-gu	Lugal-e.ba-an-sa$_6$	Lugal-e.ba-an-sa$_6$ d.s.	šà.bal-a	ŠS3+
*YBC 12541	2*	⅓ sar 5 gín +	A-gu	Lú.kal-la	Lú.kal-la d.s.	sà.bal-a	ŠS3+
*YBC 12521	1†	⅓ ma-na +	A-gu	Ur.é.nun	(illegible)	—	ŠS3+
*YBC 12531	2	⅔ sar +	A-gu	KIL.za.AN	KIL.za.AN	—	ŠS3+
Nik.II 224	1	⅓ sar +	A-gu	Lú.ì-zu	Lú.ì.zu	—	ŠS3+
Nakah.31	1*	10 gín	A-gu	dŠará-kam	dŠará-kam d.s.	—	ŠS3+
YBC 12528	5*	–	A-gu	Ur.dŠará	Ur.dŠará d.s.	—	ŠS4
*YBC 589	9*	10 gín-ta +	A-gu	[Lú.sa$_6$].ì-zu	Lú.sa$_6$.ì-zu d.s.	—	ŠS4
YBC 12537b	4	1⅓ sar +	A-gu	Ì-kal-la	Ì-kal-la d.s.	—	ŠS4
*NBC 4401	3	1 sar +	A-gu	m-sa$_6$.sa$_6$	m-sa$_6$.sa$_6$ d.s.	—	ŠS4+
*NBC 3184	1	½ sar +	Lú.ib.gal	Nígú-rum	Nígú-rum d.s.	—	ŠS5
*NBC 5107	1	⅓ sar +	Lú.ib.gal	Ur.àm-ma	Ur.àm-ma d.s.	—	ŠS5
*UIOM 266	2	1 sar +	Lú.ib.gal	Lú.gi-na	(illegible)	—	ŠS5
Nik.II 222	8	– +	Šà-ga	Ur.dŠará	Ur.dŠará d.s.	—	ŠS5
Nik.II 223	2	⅓ sar	A-gu	Na-ba-sa$_6$	Na-ba-sa$_6$	—	ŠS5+
Nik.II 225	7	+	A-gu	Lú-Ke$_5$	?	—	ŠS5+
*YBC 9792	2	½ sar +	A-gu	Ur.Lugal	Ur.Lugal d.s.	—	ŠS5+
*YBC 12529	2	⅔ sar +	A-gu	Lú.dUtu	Lú.dUtu d.s.	—	ŠS5+
*YBC 12545	1	⅓ sar +	A-gu	Ur.dŠul.pa.è	Ur.dŠul.pa.è	—	ŠS5+

1. The objects

For a better understanding of the terms signifying the objects involved, the purpose for which they are employed is important. It is expressed in various ways.

(a) In some cases a specifying genitive[2] is added after the noun *gi.kid* and its varieties.

má.zíd-da-ka "of the boat carrying flour" UIOM 367.

má.zíd-da "of the boat carrying flour" NBC 1772; YBC 12536; PTS 485.

má.gu-la "of the large boat" YBC 11716.

má.gur$_8$ "of the barge" YBC 1336; cf. YBC 12521.

má.kas$_4$*-e* "of the fast boat" PTS 1339.

(b) Much more common are expressions ending with the postposition *-še* "for".

má.zíd-da-šè "for the boat carrying flour" NBC 575, 1464, 1591, 3085, 3246, 5151; YBC 9792; Nik. II 224.

má.zíd-šè "id." NBC 3056.

má.zíd.gu-šè "for the boat carrying ..... flour" PTS 761.[3]

má.ninda-šè "for the boat carrying food" YBC 12519; UIOM 529; Nik. II 225.

má.ar<*-za*>*-na-šè* "for the boat carrying *arzana*[4] " UIOM 747.

má.kaš.še-šè "for the boat carrying barley (and) beer" NBC 5127.

má.siskur.siskur-ra-šè "for the boat carrying offerings" BIN V 83.

má.nì.si-šè "for the boat carrying provisions" YBC 12599.

má.da-lá-šè má.zíd-da-šè "for the tug-boat (and) the boat carrying flour" NBC 4281.

má.ensi-šè "for the boat of the ensi" TCL V 18ff. X 12.

má.gur$_8$*.d*Šara*-ka-šè* "for the barge of Šara" TCL V 18ff. VI 11.

gù.kir-ra-šè "for making the bow[5] water-tight[6]" NBC 2922; cf. YBC 12521.

gú.kir-ra-šè "id." YBC 12536.

mar.sa-aš YBC 466, 589.[7]

2 In a few cases a proper name follows *má*: NBC 671, 2687; YBC 12544; PTS 630, 1197; Monts. 205.

3 The text seems to offer an additional sign which I am unable to decipher. For *zíd.gu* cf. F. Hrozný, Das Getreide im alten Babylonien 115ff.

4 See ibid. 105.

5 See A. Salonen, Die Wasserfahrzeuge in Babylonien 76.

6 Cf. ŠL 15:251. Also TCL V 18ff. rev. III 18ff.

7 The meaning is obscure; but note that *lú.mar.sa* occurs besides *lú.má.gin* which according to A. Salonen, Nautica Babyloniaca (SO XI /1) 18f., means 'stevedore'.

mar.kid[8]*-aš* YBC 9821.

é.gud.gaz-šè "for the slaughter-house" NBC 5167, YBC 12534.

é.mušen.tu-šè "for the dovecote[8a]" UIOM 735.

é.lugal-ra.ús-sa-šè "for attaching (it) to the king's house" UIOM 556.

é.šu-tum.nu.bànda-šè "for the magazine of the nubanda" TCL V 10ff. VI 27.

Furthermore:

má.siskur.siskur.Unug^{ki} "(for) the boat carrying the offerings for Uruk" NBC 2963; YBC 12541.

(c) In quite a number of instances the purpose is indicated by a complete sentence. The verbs encountered therein are usually *gar* or UR with inscribed A.

gar

má.zíd-da-ka ba-a-gar "it was placed in the boat carrying flour" NBC 1388, 1831, 3184[9]; YBC 12520, 12545.

má.zíd-da ba-a-gar "it was placed in the boat carrying flour" NBC 2985, 5107.

má.bal-a ba-a-gar? "it was placed in the empty boat" NBC 948.

ba-a-ga-ar "it was put in place" NBC 2031.

URxA

*má.zíd-da-ka ba-a-*UR×A "it was installed in the boat carrying flour" NBC 2070, 2896; YBC 12545; PTS 866; UIOM 571; UCSP IX 4 II 71.

*má.zíd-da ba-a-*UR×A "id." NBC 1485, 2889, 3307; PTS 554; UIOM 266.

*má.zíd.kal ba-a-*UR×A "it was installed in the boat carrying best flour" NBC 1856, 3208, and certainly also (despite the missing *má*) YBC 12539.

má.zíd.kal.lugal.du$_8$*-ka ba-a-*UR×A "it was installed in the boat carrying best flour fit(?) for kings" PTS 1274.

má.zíd.kal.x ba-a-[UR×A] "it was installed in the boat carrying best ... flour" YBC 65.

má.zíd-da.gi-na ba-a-[UR×A] "it was installed in the boat carrying regular flour" PTS 1274.

*má.ninda-ka ba-a-*UR×A "it was installed in the boat carrying food" NBC 4401, 5240;

8 The tablet reads thus and not *sa*.

8a The tranlation assumes that *é.mušen.tu* stands for *é.mušen.tu*^{mušen}.

9 There is an erasure between *da* and *ka*.

YBC 11834, 12518, 12531, PTS 630, 986[10]; Strbg 153.

*má.ninda ba-a-*UR×A "id." YBC 12522; PTS 553, 1197.

*má.ninda.ba.lugal-ka ba-a-*UR×A "it was installed in the boat carrying the food ration of the king" NBC 3500.

*má.zíd.ninda ba-a-*UR×A "it was installed in the boat carrying flour (and) food" TCL V 18 ff. V9.

*má.ar-za-na-ka ba-a-*UR×A "it was installed in the boat carrying *arzana*" Strbg 256.

*ma.zíz.ninda.ba.lugal ba-a-*UR×A "it was installed in the royal boat carrying the ration of emmer and food" TCL V 18ff.VI 38.

*má.dida ba-a-*UR×A "it was installed in the boat carrying strong beer" UIOM 598.

*má.gišma-nu ba-a-*UR×A "it was installed in the boat carrying laurel(?) sticks" YBC 12544.

*má.rá-gab ba-a-*UR×A "it was installed in the boat of the *rākibum*[11]" NCBT 1652.

*má.gur$_8$-ra.lugal ba-a-*UR×A "it was installed in the royal barge" TCL V 18ff.VIII7.

The sign UR×A is not contained in Deimel's Šumerisches Lexicon. Its meaning seems fairly clear from the context of our tablets. The reading is probably furnished by the phrase:

má.zíd-da.bal-aka ba-a-tu-ul "it was installed in the empty flour boat" NBC 319.

Occurrences of a verb *bar(a)* are rare; it is found only twice:

<*má.*>*še.zíd.gu-ka-šè ba-ši-ba-ra* "it was set aside for the boat carrying grain (and) ..... flour" UIOM 769.

gá.dub-ba.x-šè ba-an-ba-ra "for the ... store house it was set aside" YBC 12537.

ba-ba-ra šà gá-dub-ba ensi-ka "it was set aside in the store house of the Ensi" TCL V 18ff.VI 34.

(d) The fourth possible construction is the infinitive of purpose. The following instances occur in our material:

*má.zíd.*UR×A*-dè* "for installation in the boat carrying flour" NBC 5261.

má-ta.gur-ra "by return from the boat" Nik.II 232.

gù.kir-ra má.gur$_8$.lugal-ke$_4$ sa.bil x-ag "(for) making ..... new (reed) bundles in order to make water-tight the bow of the royal barge" YBC 12521.

10 The text has *ba-*UR×A.
11 The tablet is sealed by *A.kal-la rá-gab*.

|zíd|.gi.ba-ra-gi-dè "in order to return the flour (to be) returned" PTS 453.

kaš$_4$.gi.ba-ra-gi-dè "in order to return the ..... (to be) returned" NBC 1856.

Also, and of slightly different nature:

ḫar.gud.še.aka-dè "for making fodder" YBC 767.

šim.gul-dè "for pounding gum" YBC 1336.

Doubtful as to reading and meaning is

NÍG.ÍLA-*ga-dè* YBC 11716.

The collected evidence makes it abundantly clear that the various types of reed mats are in the large majority of all cases intended for installation in boats.

For the more precise interpretation of *gi.kid* and its varieties we have to consult the vocabularies.

To begin with a discussion of the reading which has been adopted here, it is assured by the following principal passages:

ge-e	KID	*ki-i-tu*	Sb (van der Meer[12]) 232
⌈ge-e	KID	*k⌋i-i-tum*	*ea/A/nāqu* IV ("Chic.Syll."[13]) I 5
ge-e	KID	*ki-tum šá qa-ni-e*	Rm 2,588[14] obv. II 16

This raises the question as to the correctness of the commonly adopted reading Akk. *addupu(m)* for Sumerian *ad.kid* "mat-maker".[15]

A.Sachs calls my attention to the fact that there is apparently no unambiguous spelling which assures the reading of *ad-DU-pu/i/a*, but that K 4349 (CT XXIV 2Cff.) XI 131 offers (slightly damaged) *ad-KU-pi*. There is no valid reason for emending that passage, as Meissner OLZ 1909 204 does. On the contrary, when combined with the reading *kid, ke$_x$* which has just been documented, it suggests that *adkuppu* is the better reading. The final *p (pp)* may be a variant of the genitive suffix as in *nukarip(p)u, lakuruppu* "gardener" <Sum. *nu.giri$_{12}$*.

The meaning of Sum. *kid*, Akk. *kîtum* is, with Meissner (MVAG XII 3 2Cff.), to be deduced from the following entries in the series diri/*watru*, K 4174 (CT XI 45ff.) III 12ff.:

⌈mu-ru[16]*⌉* | *⌈gi.kid.⌉ má.maḫ*[17] | *bu-ru-u; x[....]*[18]

12 OECT IV p.40ff. 13 R.T.Hallock, OIAS 7.

14 B.Meissner, Sppl.p.25*; AJSL 36 158ff.

15 For the reading with *p* see Meissner, OLZ 1909 204 because of *ad-KU-pi* to be quoted presently. For the meaning cf.F.Thureau-Dangin,Rit.Acc. 53.

16 This restoration is indicated by CT XXV 1ff.II 59 where *gi.kid.maḫ* has the gloss *mu-ru*. Cf.AO 5376 (RA 20 98f.=TCL XV 25ff.) VIII 44.

x[....]	[gi.kid.] má.šú-a[19]	bu-ru-u; [.....]
x[....]	[gi.kid].nigin	" ; [.....]

The descendants of Akk. *burû* in other Oriental languages[20] establish the meaning of the word.

The pertinent passage of the series Ḫarra/*ḫubullu*[21] has not been recovered as yet. Only a single entry has survived in the commentary ḫar.gud/*imrû*/*ballu* and can be found on K 152 (RA 14 79) restored with the help of K 208 (V R 32 No.4):

19	gi.ú.ki.sè-ga	ḫi-[šú; qin-nu šá iṣṣurāti[22]]
20	gi.úr	a-da-at[-tum[23] "]
21	gi.kid.má.šú-a	a-šá-[šú[24]; "]
22	gi.uš.gil	ú-šá[-aš-tum; "]

Line 21, which is of particular interest for our present purposes, is replaced in the just quoted parallel text by the variant:

56 gi.ú.esir.šú.má-a | a-šá-šú; qin-nu šá iṣṣurāti.

According to K 4174 (CT XI 45ff.) this is quite legitimate; for there we read:[25]

I 26	gu-ud[26] [ú.ki.sè-ga	ú-ki-si-g]a-ku	qin-nu
27			ḫi-[šú]
28			ku-ma[-ṣu][27]
29	a-za-ad ú.esir[.šú.má	ú-...]-na-a-a-ku	a-šá-šu

No doubt Akkadian *aššāšu* is a loanword from Sumerian *azad* which must have been the special word for a reedmat that covers a boat, and which according to its ideogram was fashioned from reed, "grass" and bitumen. We have to assume that the exact correspondences are:

muru	gi.kid.má-šú-a	*burû(m)*
azad	gi.ú.esir.šú.má-a	*aššāšu(m)*

17 This reconstruction is obviously more correct than Meissner's.
18 The synonym is probably ú-šá-šú or ú-šá-aš-tum for which see presently.
19 Thus also K 118 (ZK 2 83=CT XLI 33) obv.13. Cf. R.Labat, Commentaires Assyro-Babyloniens sur les présages 70ff.
20 MVAG XII/3 (1907) 20ff.
21 I was able to consult Landsberger's manuscript on this series which is kept in the Oriental Institute of the University of Chicago.
22 The latter expression which means literally 'bird's nest' is rather puzzling.
23 Cf.Sum. ^{giš}a-da which, according to Salonen, Die Wasserfahrzeuge 89f., means 'planking'.
24 See presently.
25 For the restoration note the remarks made by Christian, ZA 25 366.
26 Cf.Del.SG1.108.
27 This is taken from the series *malku/šarru* I (van der Meer, OECT IV p.59ff.) IVa 17.

The regrettable loss of the section dealing with *kid* in our present text of the series Ḫarra/*ḫubullu* is to some degree made up by its partial survival in the unilingual "forerunners". The text that we can reconstruct by perusal of SLT 85, 89, 91, 93, 97 and 202 shows at least the complexity of the matter, but it is unfortunately again deficient in that part which might be important for our present purpose. The reconstructed text runs as follows:

gi.kid.	"reed mat"	202	I	10	94	I 9	89 III	4
gi.kid.maḫ	"great reed mat"			11		10		
gi.kid.má.šà	"reed mat for the interior of a boat"			12		11		
gi.kid.má.šà-ga	"ditto"			13		12		
gi.kid.má.šà.an-na	"ditto upper"					13		
gi.kid.nigin-na	"enclosing reed mat			14		14	97	1
gi.kid.nigin.má	"ditto of a boat"			15		15		3
gi.kid.zé.DI	"?"			16				
gi.kid.dil.nigin	"individual enclosing r.m."			17				2
gi.kid.dil.nigin-na	"ditto"			18				4
gi.kid.dil.nigin.má	"ditto for a boat"			19				
	(gap)							
*gi.kid.an.*MA		85	I	1				
gi.kid.an.tag				2				
gi.kid.gug.bulùg	" mat of bean straw (?)"			3				
gi.kid.kuš.si-ga	" r.m.fitted with leather"			4				
gi.kid.kaš-a	" r.m.for beer"			5				

The gap cannot be considerable. SLT 202 suggests that it may amount to about five lines. These missing entries must have included those in which we are particularly interested: *gi.kid.šú.má*, *gi.kid.dagal* and *gi.kid.nir(r)um*.

The meaning of *muru*, Akkad. *burû(m)* is fairly clear from its ideogram which literally means "reed mat for covering a boat". It is reasonable to assume that the mats of that name were spread horizontally over the cargo, or over the deck (if the boats had a deck). The dimensions that occur favor this interpretation; they nowhere exceed .5m x 3½m.

The *gi.kid.dagal* is rare in our texts, but plays a conspicuous part in the important document AO 6036 (TCL V 18ff.). As Salonen (Die Wasserfahrzeuge 121) has shown,

every boat, regardless of its tonnage, possessed four such mats which vary in size. This circumstance recalls the fact that the modern river boats of Mesopotamia are built with four cross-beams or "riders" (Ritter, Islam 9 124). Since *dagal* refers to the width of the boat, it seems likely that the mats called *gi.kid.dagal* were installed vertically along these cross-beams and served to divide the hold of the boat into compartments. They, then, may be called "beam-mats".

By far the most frequent variety in our texts[28] is the mat called *gi.kid.nir(r)um*.[29] The distinguishing element is *nir(r)um* which means "cross-piece".[30] Hence it can be assumed with some reason that after installation these mats "crossed" some other part of the ship, most likely the "beam-mats". If this is correct, they further compartmented the boat and made it better suited for the transportation of flour and other food-stuffs.

The text AO 6036 (TCL V 18ff.) which has just been quoted mentions in addition the *gi.kid.má.ša-ga*, literally "reed mat for the interior of the boat". One might think that this is just another expression for *gi.kid.nir(r)um*. However, its smallness[30a] precludes identification.

2. The Number and the Size of the Mats

The number of the mats rarely exceeds 8 and usually remains below 4. The frequency of the numbers of mats delivered is meaningful only with the *gi.kid.nir(r)um* and the *gi.kid.šú.má* for which the textual material is numerous enough to allow for a statistical approach. Here are the figures:

28 The term is missing in A. Salonen, Die Wasserfahrzeuge. At the bottom of p. 120 there our *kid.nir(r)um* should be read instead of his *kid*.

29 The spelling varies between *nir-ru-um* and *nir-um*; the *gi* may be omitted, but sometimes the *kid* is lacking instead.

30 The Sumerian *nir(r)ūm*, to judge from its form, is an Akkadian loanword. A part called *nir(r)um* is found with the door (Akk. *nīr dalti*), with the plough (Sum. *giš šudun. apin*), with the mast of the ship (A. Salonen, Die Wasserfahrzeuge 113), with the liver (YBT X p. 7f.) and probably also with the loom (Aram. *nīrā* 'cross-beam'); Akk. *nīrum* 'yoke' is well attested. The original meaning is probably 'cross-piece'. It is not impossible that the word, for which no Semitic etymology is available, was originally Sumerian and came back to that language from Semitic. Cf. Sum. *ner*=Akk. *tarāṣu(m)* 'stretch out'.

30a 5 *gín*: YBC 466, UIOM 623. See furthermore the Telloh texts quoted by A. Salonen, Die Wasserfahrzeuge 122.

gi. kid. šú. má

Numbers attested:	1	2	3	4	5	6	7	8	9	10	11
Their frequency:	7	8	5	2	1	2	1		1		1

gi. kid. nir(r)um

Numbers attested:	1	2	3	4	5	6	7	8
Their frequency:	31	35	5	20	4	4		4

In the great majority of cases, the size of the mats is indicated. This is rarely done individually: "so and so much each". Almost universally the measurement given refers to the total of the mats; thus, calculating the size of the individual mat requires dividing the size of the total by the number of the mats.

The phrase which is normally encountered reads: *ki. lal-bi x* "its (their) *ki. lal* (is) x". The noun *ki. lal* is well known in the meaning "weight". But our texts (with the only exception of Nik. II 226 and YBC 12521) do not specify the x in terms of measures of weight; the measure normally applied to the mats is the *sar*. It follows that *ki. lal*, beside its original meaning "weight", must also have a more general meaning "size".

The *sar* serves in Sumer both as a measure of surface and as a measure of volume[30b]; in both cases the smaller unit is the *gín*, 60 *gín* making 1 *sar*. It can indeed be shown that the *sar* which measures the mats contains 60 such smaller units. Not only does the scale run up to 19 *gín*[31] and then shifts to 1/3 of a *sar*, but the relationship is clearly brought out by AO 6036 (TCL V 18ff.) where the following addition is found:

16 mats amounting to	1 1/3 *sar*		(VIII 8f.)
165 mats amounting to	15 *sar*	15 *gín*	(VIII 34f.)
181 mats amounting to	$16\frac{1}{2}$ *sar*	5 *gín*	(XIII 13ff.)

i.e. 10 *gín* = $\frac{1}{2} - \frac{1}{3}$ *sar*, or 10 *gín* = $\frac{1}{6}$ *sar*.

The question as to whether we are dealing with area *sar* or with volume *sar* has still been left open. It is settled in favor of the former by the few exceptional cases in which dimensions are given. These cases are as follows:

30b The *sar* is also used in counting bricks regardless of the size of the individual bricks. In this use, the *sar* always equals 720 bricks. See Neugebauer-Sachs, Mathematical Cuneiform Texts 94ff.

31 It so happens that the highest number of *gín* attested is 18: NBC 1464.

Nik. II 225: length[32] 1 GAR, width[33] 4 *kùš*; i.e. area 1/3 *sar* = 20 *gín*

NBC 3084: length[34] 10 *kùš*, width[34] 4 *kùš*; i.e. area 5/18 *sar* = 16 2/3 *gín*.

An additional case occurs in a Telloh tablet:

ITT V 8214: length 1½ GAR, width 7 *kùš* i.e. area 7/8 *sar* or 52½ *gín*.

The first case coincides perfectly with the normal size of the *gi.kid.nir(r)um*, the second is a little under this standard but well within the range of variation that is otherwise observable. The third case is considerably larger than standard; but a mat of 5/6 *sar* or 50 *gín* occurs elsewhere[35].

Although, as just stated, the normal size of a *gi.kid.nir(r)um* is 1/3 of a *sar* or 20 *gín*, there is a good deal of variation. It ranges from 5 *gín*[36] to 50 *gín*.[37] The variation is doubtless due to the fact that the boats in which the mats were used were of varying size.

The "covering mat" is normally smaller, on the average 10 *gín*, i.e. half of the normal size of the "cross-mat". The variation ranges from 6 2/3 *gín*[38] to 15 *gín*[39]. Larger "covering mats" seem to be required, however, for the *ma.gur*$_8$. For such a mat the following dimensions are recorded in

YBC 1336: length 10 *kùš*, width 7 *kùš*; i.e. area 35/72 *sar* or just under 30 *gín*.

In Telloh such mats seem to have been known under the name *gi.kid.maḫ*. The following texts contain measurements thereof:

ITT V 6876: length 2 GAR, width 7 *kùš*; i.e. 7/6 *sar* or 70 *gín*.

ITT V 8230: length 2 GAR, width ½ GAR; i.e. 1 *sar* or 60 *gín*.

In no case is the thickness of the mat mentioned; it apparently was considered unessential.

[The following is of interest: In the same text (TCL 5 18ff.), when the mats are totalled up, additional information is given about the number of bundles of reeds (*gi-bi* x *sa*) and the number of workdays (*á-bi* u_4-*x*). For the *gi.kid.nir(r)um*, the *gi.kid*, the *gi.kid.šú.má*, and the *gi.kid.dagal* (for the latter, see the little table prepared

32 Text *uš-bi*.
33 Text ZU-*bi*. This remains obscure, but it is clear that only 'width' can be meant.
34 Here and in the following examples clearly *gíd* and *dagal*.
35 NBC 2687; PTS 1274b.
36 NBC 3307a.
37 PTS 1274b.
38 PTS 319.
39 NBC 3021; YBC 12544a.

by Salonen, Die Wasserfahrzeuge 121), it turns out that there is always the following relation between the *ki. lá*, the reed bundles, and the workdays:

a *ki-lá* of 1 SAR takes 36 reed bundles and 6 workdays:

A mat measuring 6 meters by 6 meters would take six days to weave; one measuring, say, 3 meters by 2 meters would take one whole day. A. Sachs.]

3. The "Receiver" in *šu. ba-ti* Tablets.

There is some evidence to show that the "receiver" in *šu. ba-ti* texts belonged to the higher-ups in society. This circumstance lends greater probability to the assumption made above that in these tablets deliveries to private persons — persons of high standing then — were recorded.

Many of the "receivers" carry seals on which they call themselves "servants" of the king or the *ensi*. *Lú.^{d}En. lil-lá* (Strbg 256, dated BS 6) is probably identical with the owner of the seal VA 2720 (A. Moortgat, Vorderasiatische Rollsiegel No. 255) which contains a dedication to Bur-Sin. *Lugal.^{giš}gigir-re* (NBC 956)[39a], *Ur.^{d}Šará* (NBC 1429)[39b] *Kú-ga-ni* (NBC 1522)[40], *Ur.^{d}Nin. šubur* (NBC 1510)[41], *A-tu* (NBC 3084)[42], *Ur.^{d}Šará* (NBC 1464)[43], and *Tab-ša-la* (Strbg 155)[44] call themselves servants of *Ur.^{d}Lisi*, The *ensi* of Umma.

In a considerable number of cases very high officials, presumably higher in rank than the "receivers", attach their seals to the record. Thus *Ur.^{d}Lisi*, the *ensi* of Umma, himself in NBC 3084. *Ì-kal-la* (NBC 5261 and PTS 453) holds the position of *šà. tam.*[45]

39a See Schneider, Or. 5 114.

39b *Ur.^{d}Lisi / ensi [Umma^{ki}] / Ur.^{d}Šará / gán. dub-ba / dumu x x x /*

40 The seal on that tablet was previously known from Nik. II 227; see also Schneider, Or. 15 421.

41 *Ur.^{d}Lisi / ensi Umma^{ki} / [U]r.^{d}Nin. šubur / dub. [sar] / [du]mu Inim. x ìr [-zu].*

42 See Schneider, Or. 15 421.

43 See G. Contenau, Umma sous la dynastie d'Ur 54f.; Schneider, Or. 15 421.

44 Cf. Nik. II 221, if *Tab-ša-la* is the correct reading there, as is likely.

45 His seal on PTS 453 calls him simply *dub. sar dumu Lú.ša$_6$-ga* (cf. Schneider, Or. 15 69 sub No. 116). Compare also the text Contenau, Hist. écon. d'Umma No. 79 (Bur-Sin 4) with the seal of the ensi.

Lú.kal-la may be identical with the man of the same name who carries an *ensi* seal in BIN V 232. *Na-ba-ša$_6$* was according to Nik. II 228 a *gúdu.an.ki*, apparently a high cleric. Adda.kalla's seal that can be reconstructed by a combination of its impressions on YBC 998 and 11823 is unusual inasmuch as it reads: *Ad-da.kal-la / dumu Lugal.kú-ga-ni / máš-e pàd-da ^{d}Utu* "high priest designate of the Sun-god". *Lú.^{d}Šará* is probably identical with the scribe of MD 3 (MAOG IV 191) who is a son of *Gududu, šukkal lugal.*

4. The Sealer

In Group I the receiver himself usually seals and is called a *dub.sar* on his seal. Unless the text mentions a sealer different from the receiver there are few exceptions from the rule. Only on the tablet Strbg 256 *Lugal.si.NE* seals instead of *Lú.^{d}En.líl-lá;* compare in Group II NBC 948 and 1362 where the same person seals for *Lugal.níg.si-e.*

In Group II normally the seal of that person appears on the tablet who is mentioned in the text of the tablet after the notation *kišib.* The seal identifies him in most cases as a *dub.sar.* The exceptions are as follows:

Instead of	the tablet is sealed by
Na-DI:	*Ur^{d}Sin / d.s. / dumu NA-DI* (NBC 264)
Lú.^{d}En.líl-lá:	*^{d}Šará.an.dùl / d.s. / dumu* [.....] (YBC 12532)
A-DU:	*Ku-le / d.s. / dumu Ur.ki.ága-mu* (YBC 12530)
Ḫu-wa-wa:	*Lú.ib.gal / d.s. / dumu Ur.gi$_6$.pár / gudú ^{d}Inanna* (NBC 3246)
Lugal.nig.si-e:	*Lugal.si.NE-e? / d.s. / dumu Lugal.ša$_6$-ga* (NBC 575, 948, 1362)
Gir-ni ma.laḫ$_4$:	*Lugal-e-ba-an-ša$_6$ / d.s. / dumu Ur.^{d}Satran* (NBC 2031)
A-du-mu:	*Ur.^{d}Sin / d.s. / dumu Ur.^{giš}gigir / šà.*[*tam*] (YBC 11844)

Sealing by proxy is specifically mentioned in the text or the tablets NBC 3065, YBC 12545 and Nik. II 224.

5. The Source of the Material

While the names of the receivers and the sealers vary widely, the persons from whom the material was received are very limited in number. This is the list with their earliest and latest occurrences:

Šes.kal-la	Šulgi 35	Šulgi 44

Lú.kal-la	Šulgi 36	
Ìr	Šulgi 43	
Lugal.igi.ša$_6$.ša$_6$	Šulgi 47	Šulgi 48
Ur.^{d}Šul.pa.è	Šulgi 49	Šu-Sin 1
A-gu	Bur-Sin 4	Šu-Sin 5 +
Ur.^{d}Šará	Bur-Sin 6	
B^a-za	Bur-Sin 9	Šu-Sin 1
Lugal.ḫé.gál	Šu-Sin 1	
Šà-ga	Šu-Sin 5	
Ku-le	Šu-Sin 6	

Some of these people occur only once, or only in a single year.

It seems reasonable to conclude that the persons here mentioned - and particularly those that occur over and over again - were the manufacturers from whose shops the mats came.

6. šà.bal-a

The expression *šà.bal-a* is found quite frequently in our tablets; for details see the catalogue. From *šà.bal-a ud3-kam* (YBC 12532) it becomes particularly clear that the phrase refers to time.[46] From the catalogue the fact can easily be ascertained that tablets that contain the phrase do not ordinarily mention any month[47], only the year. There are two exceptions: PTS 1210 and UIOM 556 give *itu é.itu.6 šà.bal-a*.

Noteworthy are the variants *bal-šè* (PTS 986, NBC 2031) and especially *bal.2-šè* for the second *bal*" (PTS 630).

With Jacobsen, JNES 2 170 note 66 I would interpret *bal(a)* as "term of office".[48] It then would appear that certain officials during their term of office were entitled to receive a certain number of mats, records of which were kept by the central administration.

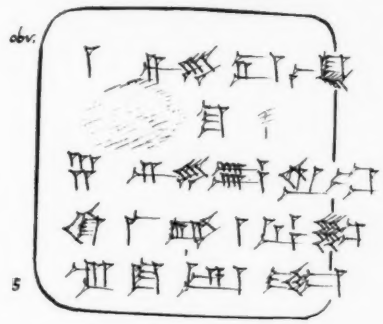
46 *bal* with days is, e.g., also found Pupil (Bab.8) 16; YBT IV 323.

47 It may also be pointed out here, for what it is worth, that the distribution over the month of the year is not even. There is a notable peak of frequency around the middle of the year with 11 occurrences of the month *tal* (5th month), 14 of the *šu.numun* (6th month) and 10 of the *min.èš* (7th month).

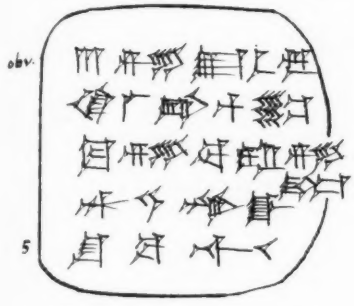
48 Some material for the word was collected by N. Schneider, Or. 18 (1925) 9ff. The basic meaning being 'turn', it is not surprising that the word, beside 'term of office', may also mean 'turn of work, chore'. This latter meaning is to be understood in the phrase *bal-šè gin-na bal-a gub-ba ù bal-ta gur-ra* "going to work, being at work and returning from work', e.g. AO 5676 (TCL V 13ff.) XI 13; and with different sequence BIN V 74 4ff.

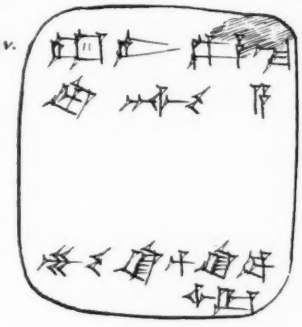
NBC 3056

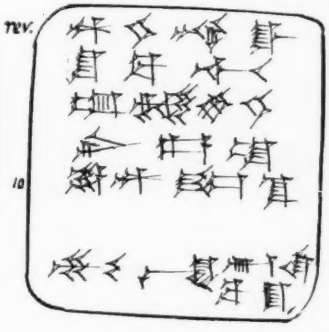
NBC 5261



PTS 453







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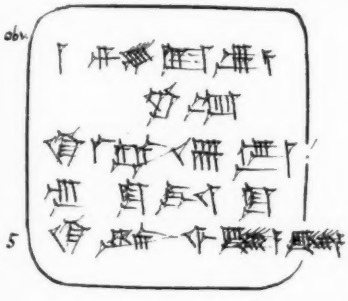

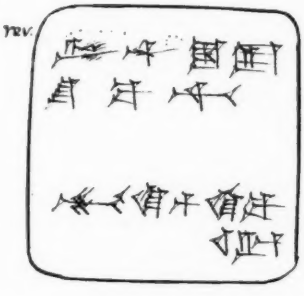

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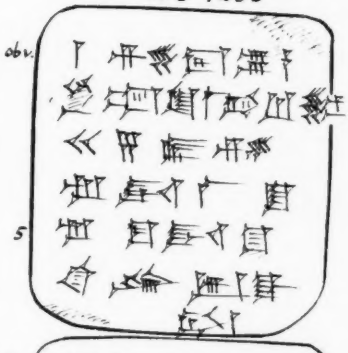

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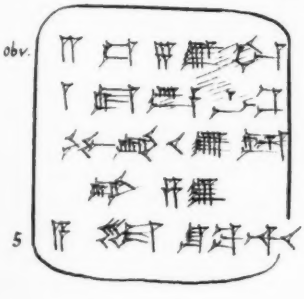

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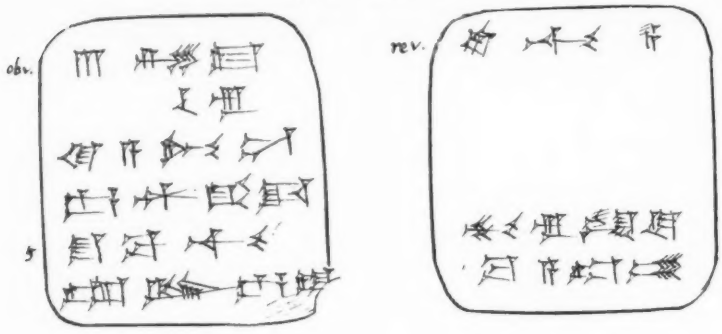
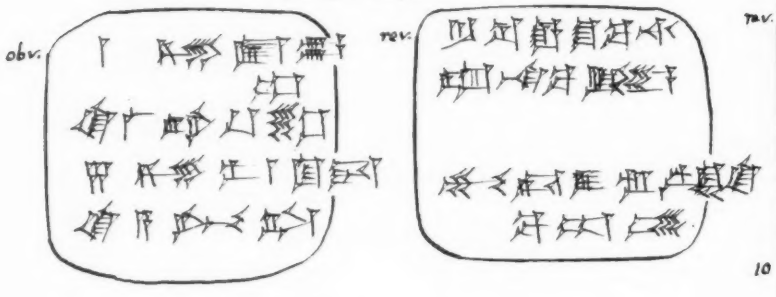


YBC 12536

PTS 1192



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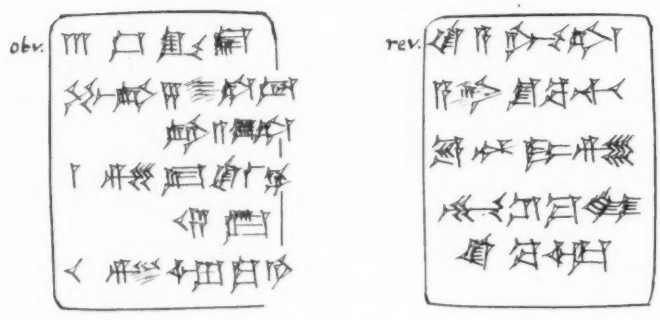

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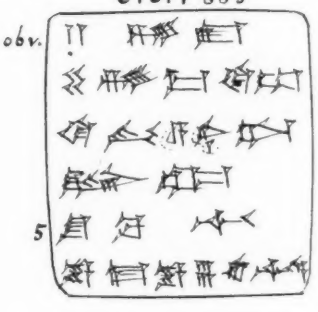

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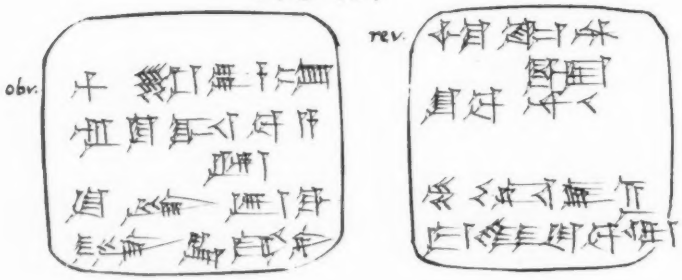
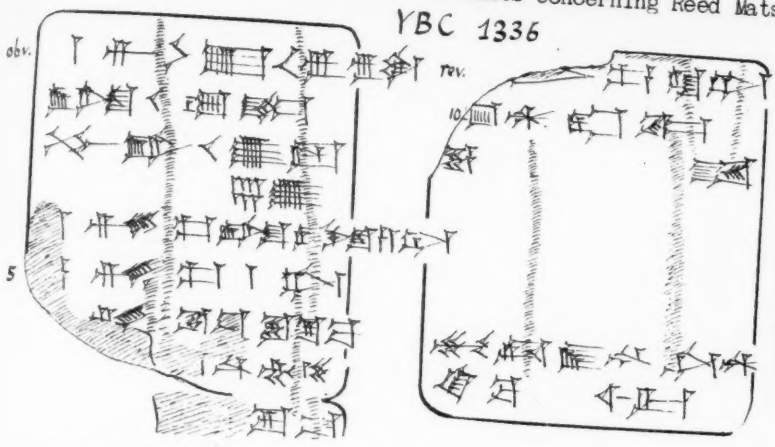


On rev. the faint impression of a seal.

YBC 1336



NBC 676

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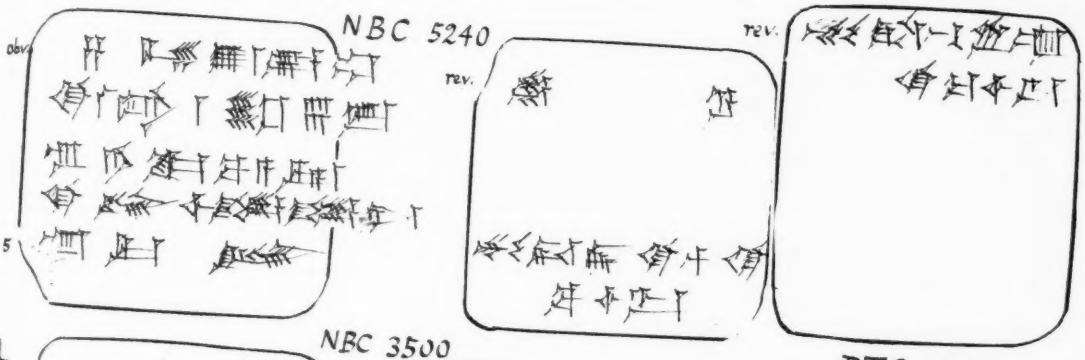

NBC 3500

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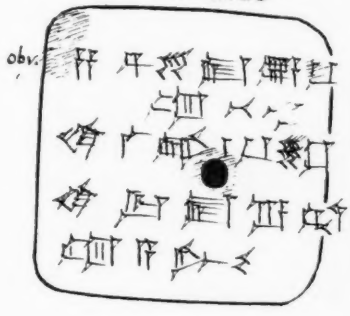

YBC 767

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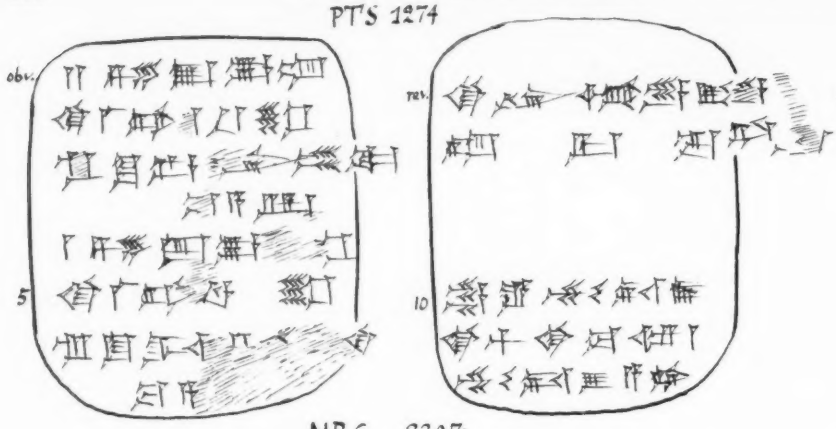

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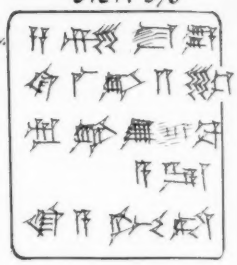

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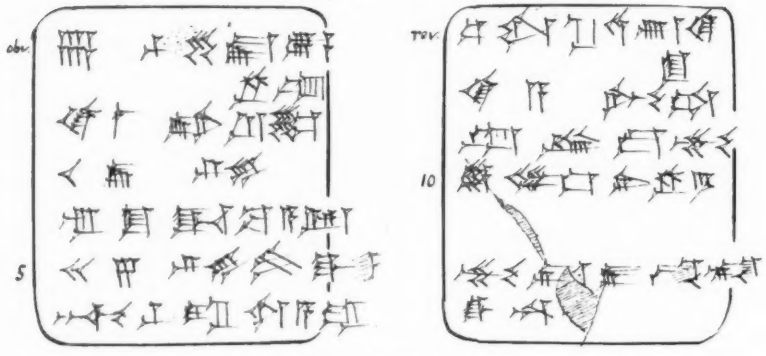

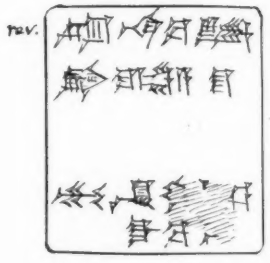

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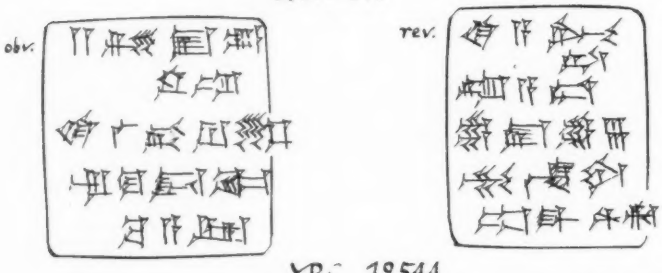

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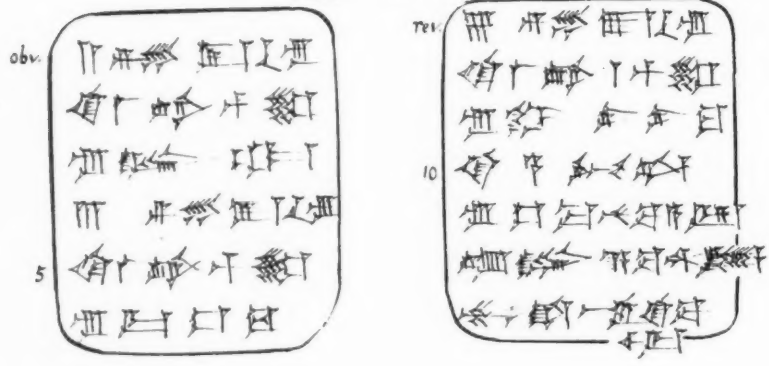

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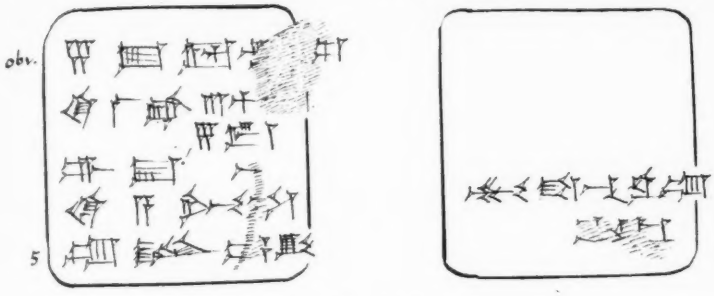

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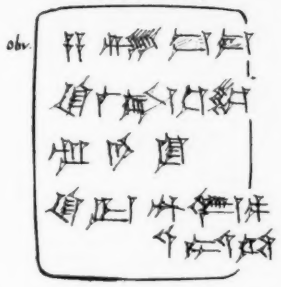

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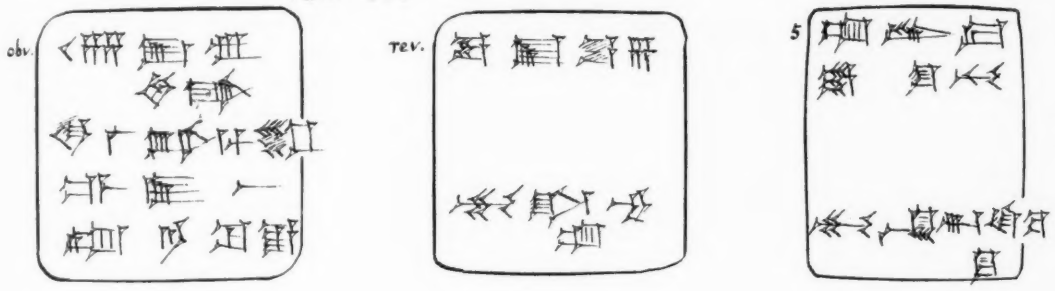

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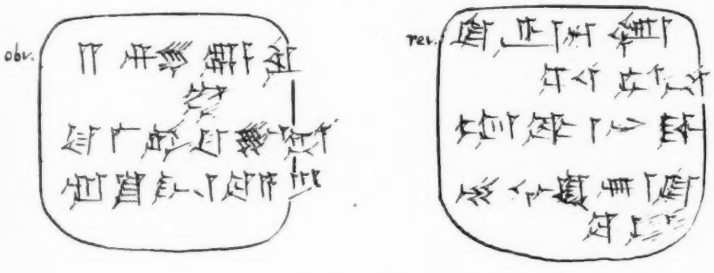

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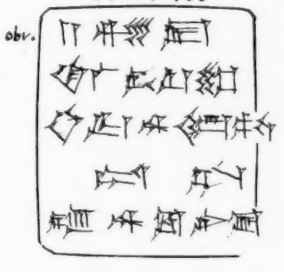

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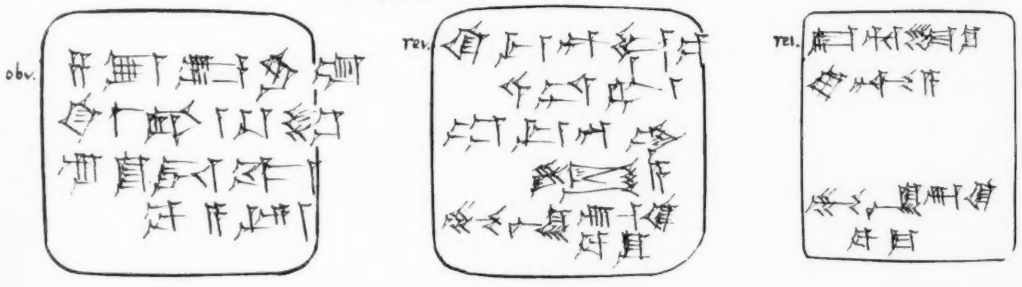

PTS 319

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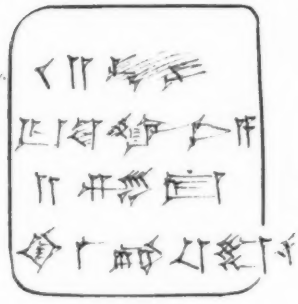

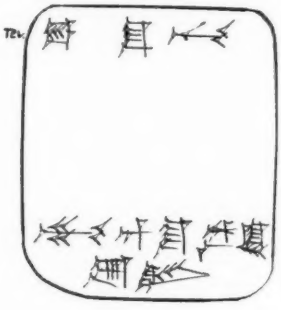

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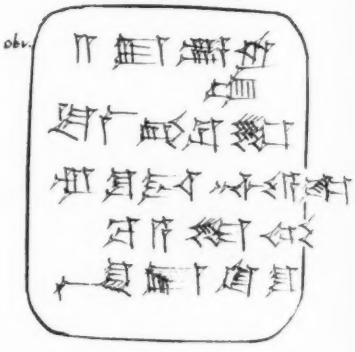

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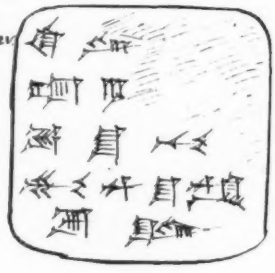

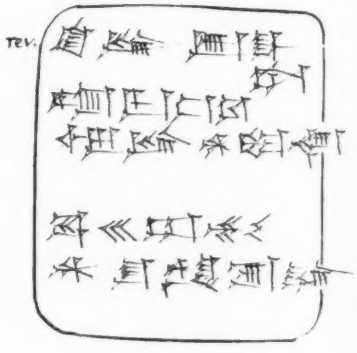

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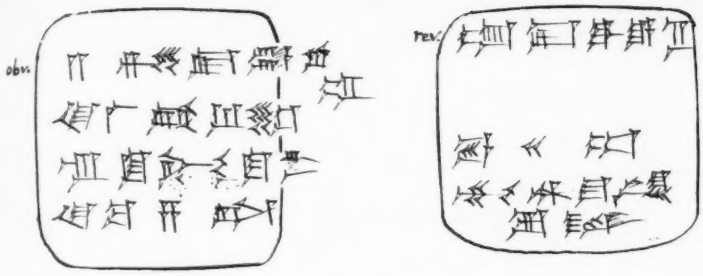

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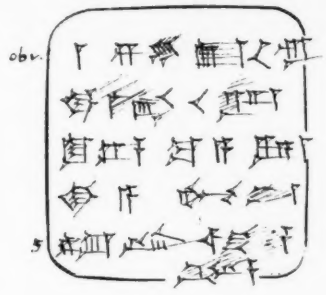

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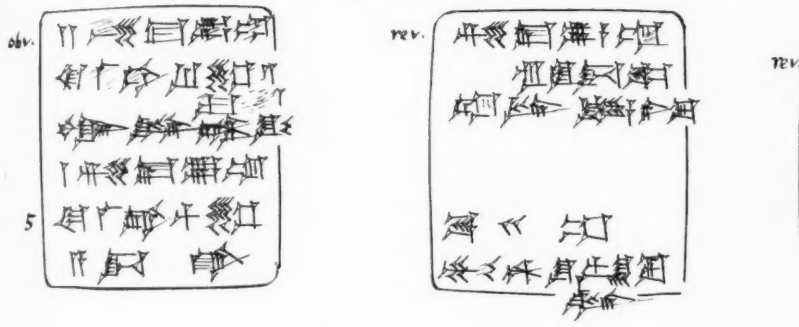

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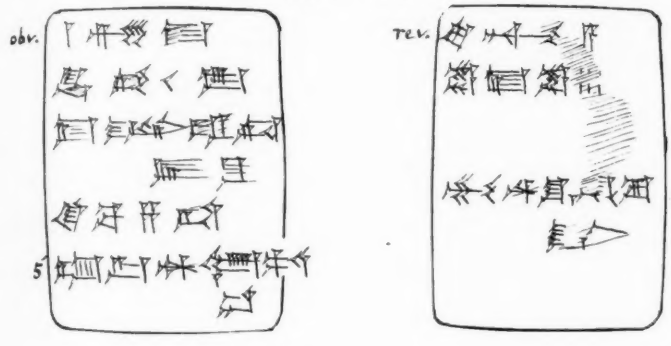

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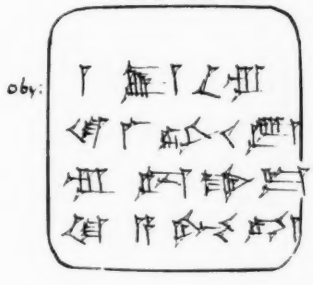

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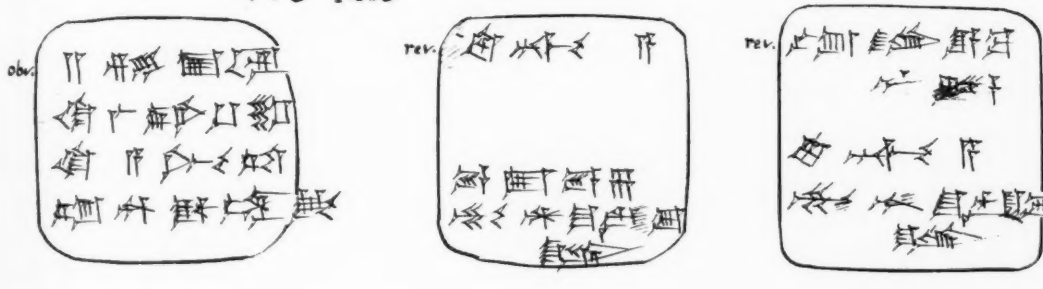
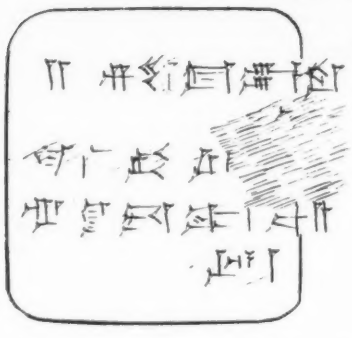
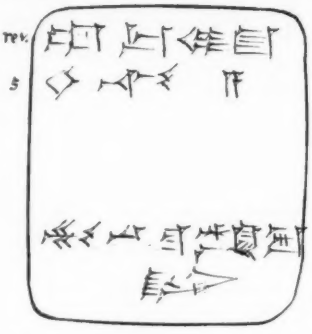


NBC 2070





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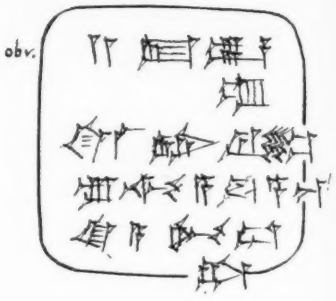

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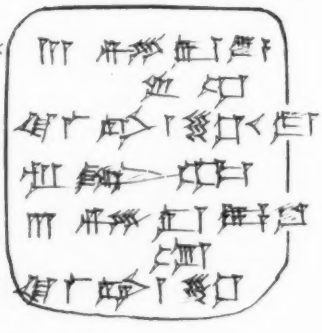

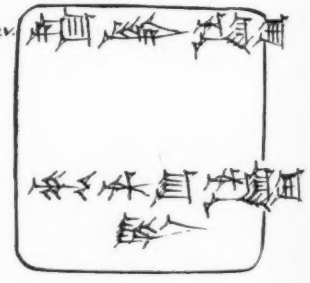

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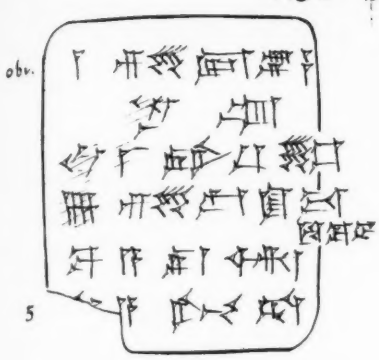

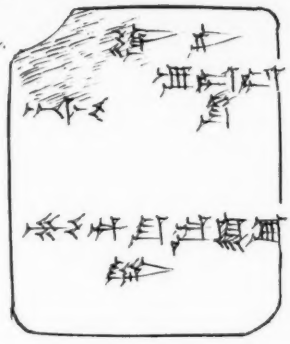

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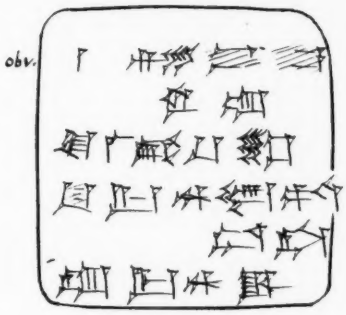

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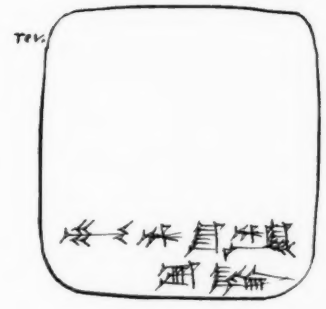

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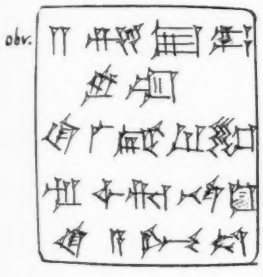

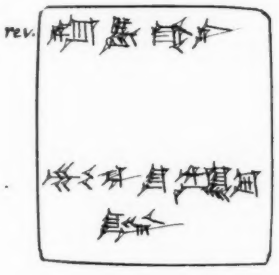

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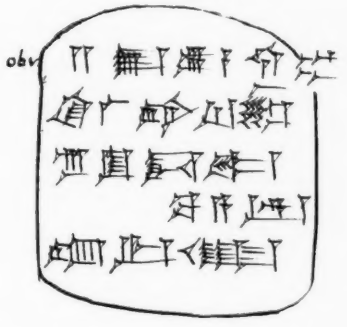

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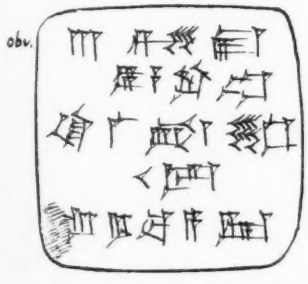

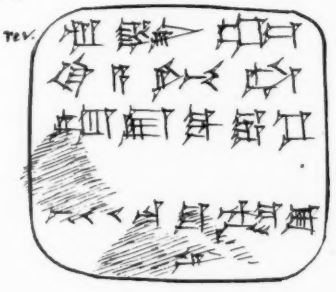

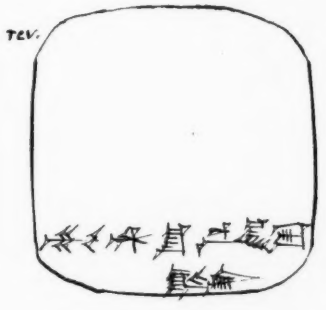

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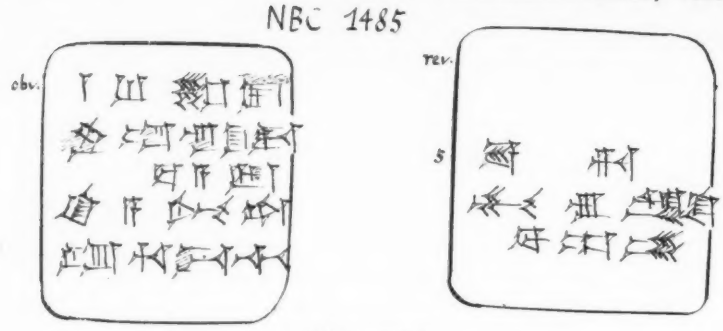

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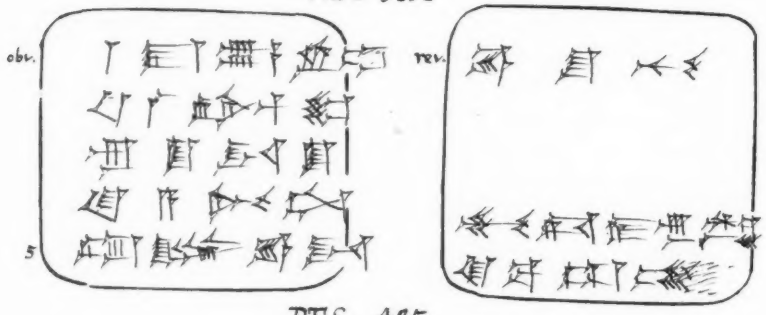

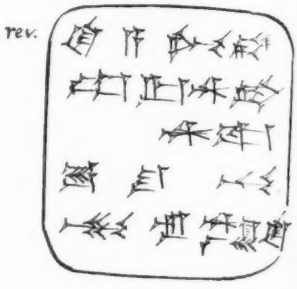

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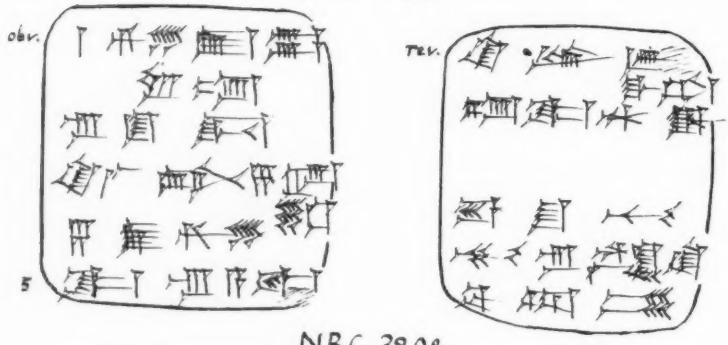

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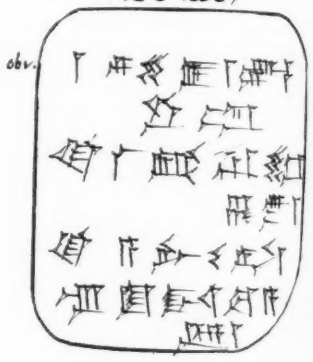

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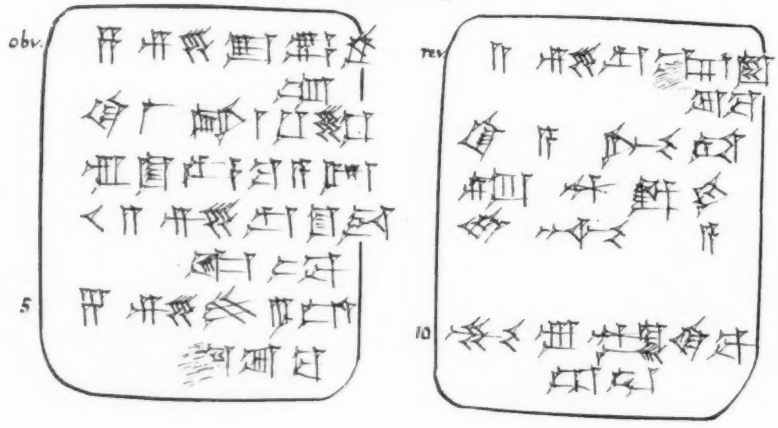

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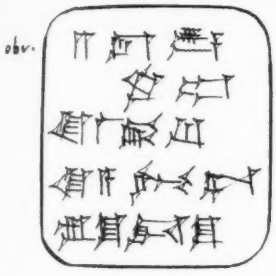

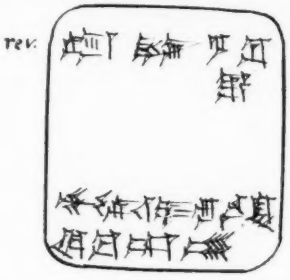

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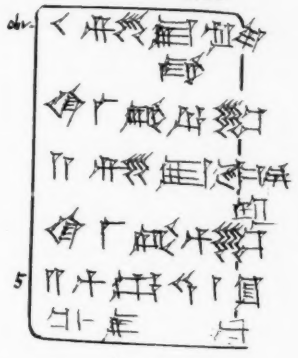

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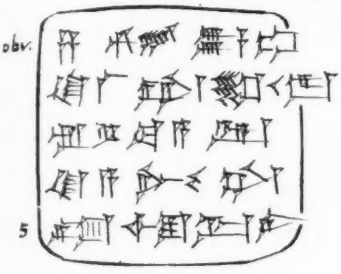

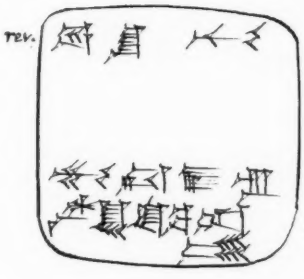

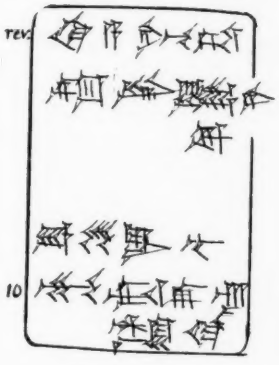

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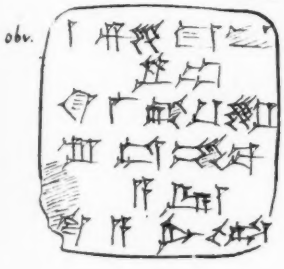

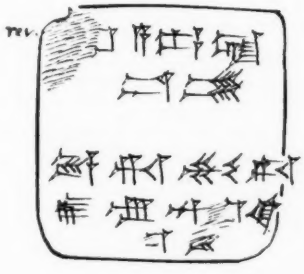

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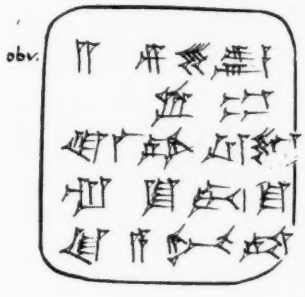

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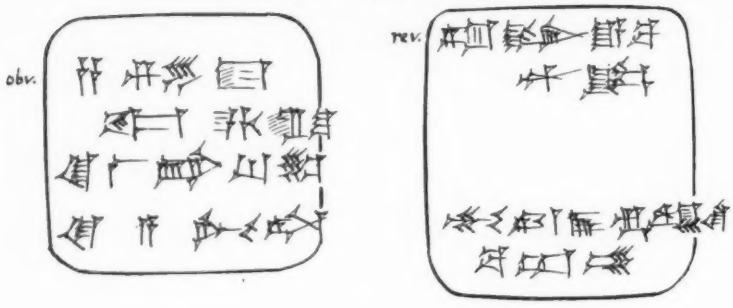

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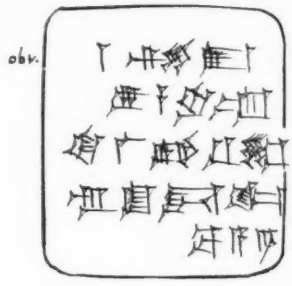

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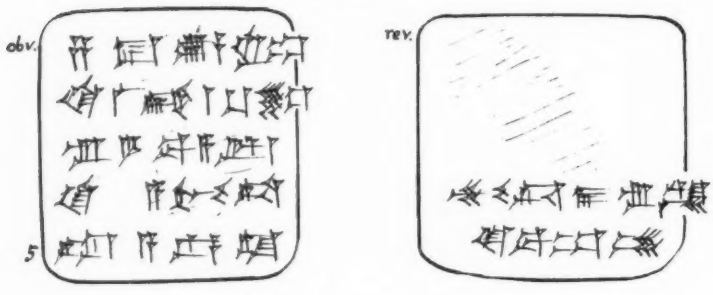

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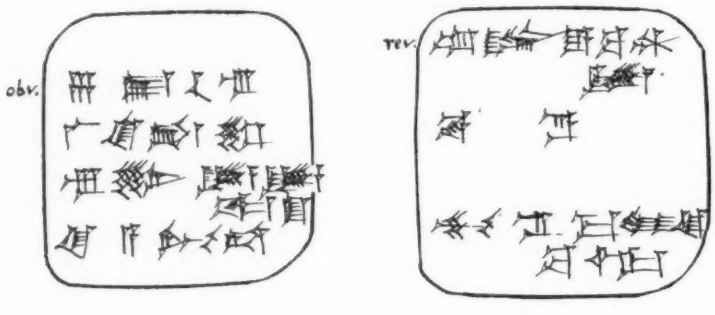

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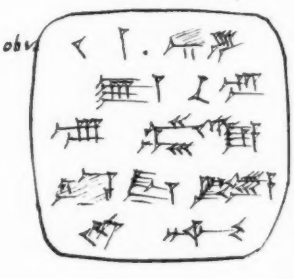

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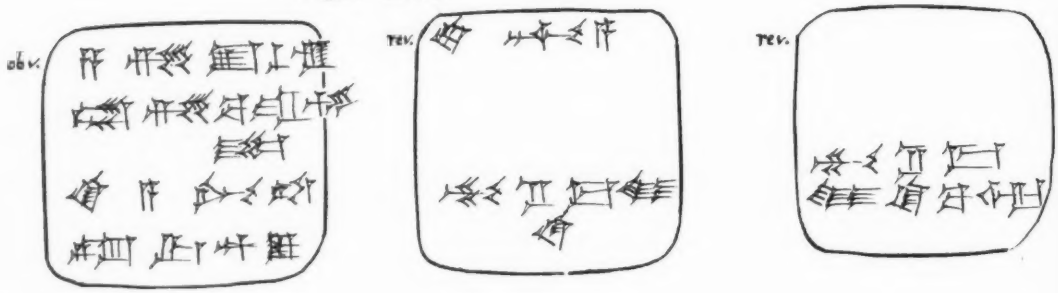

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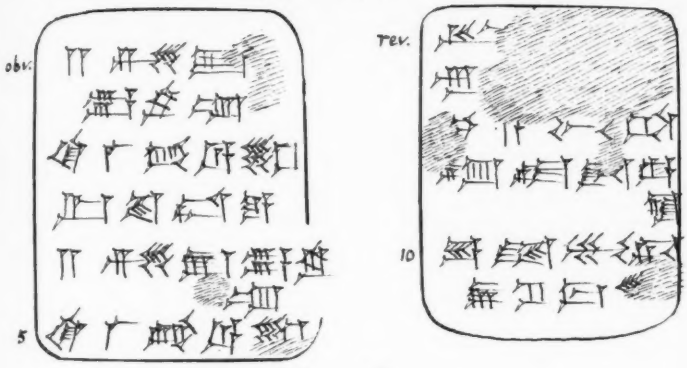

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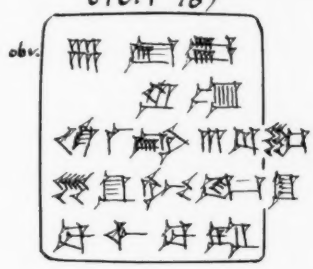

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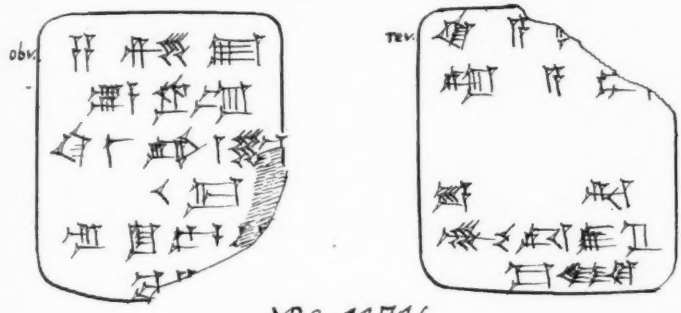

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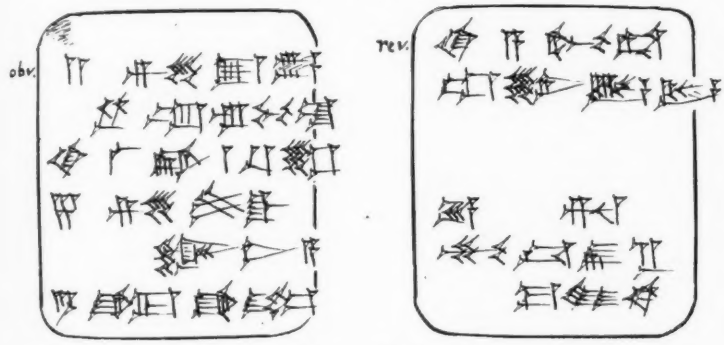

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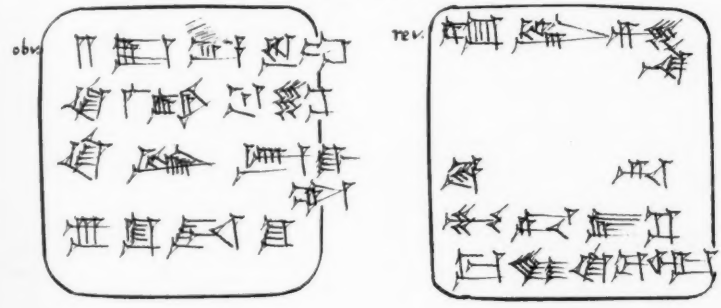

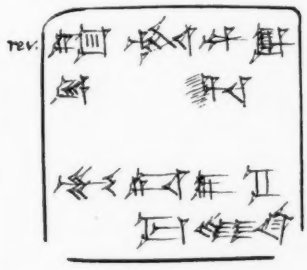

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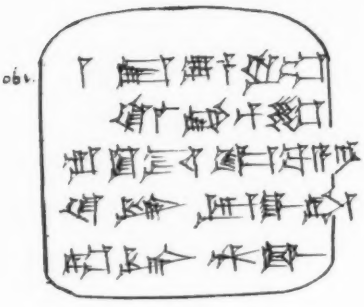

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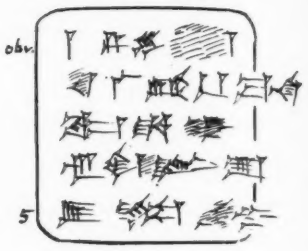

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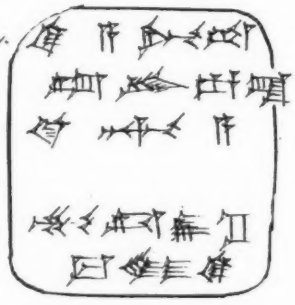

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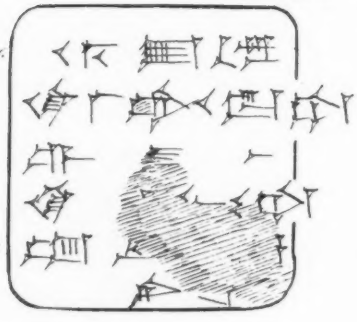

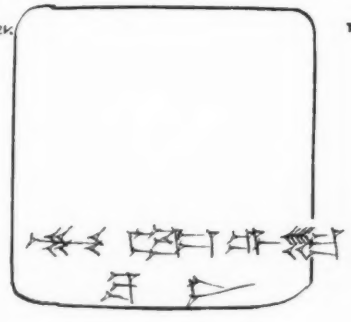

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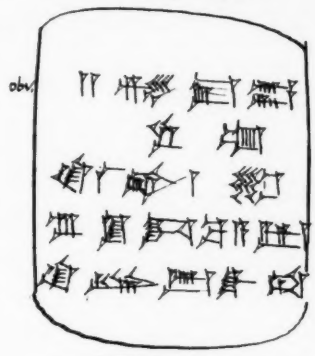

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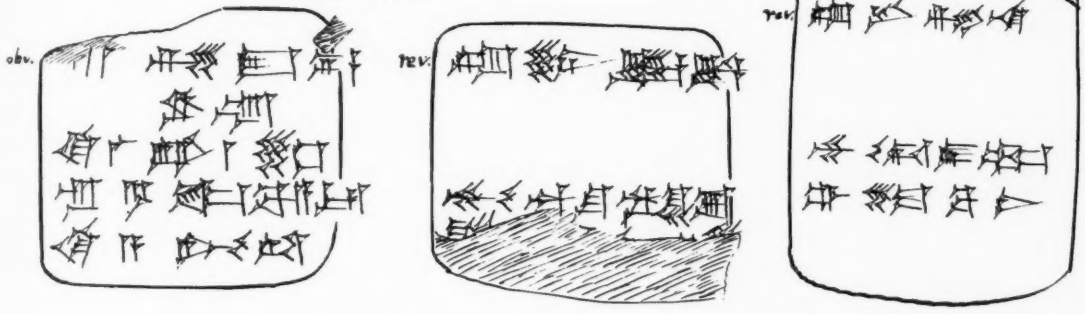

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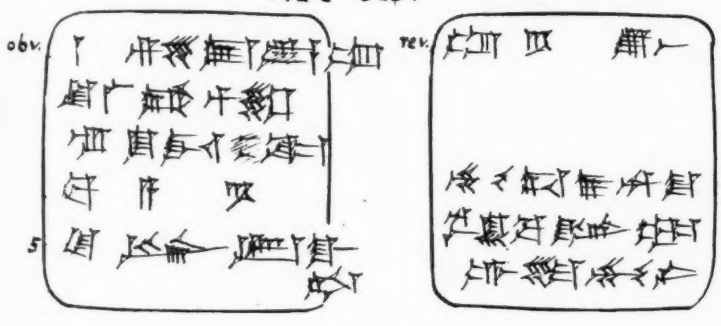

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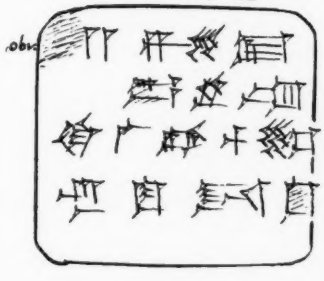

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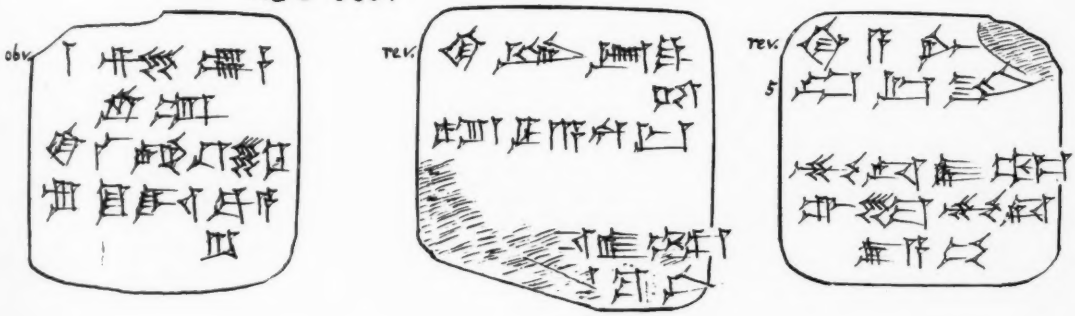

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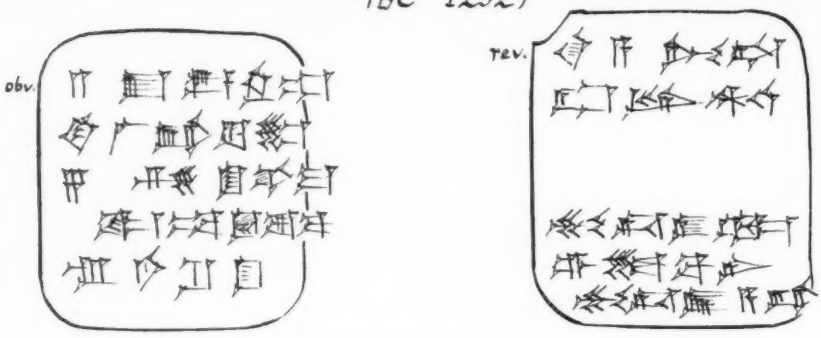

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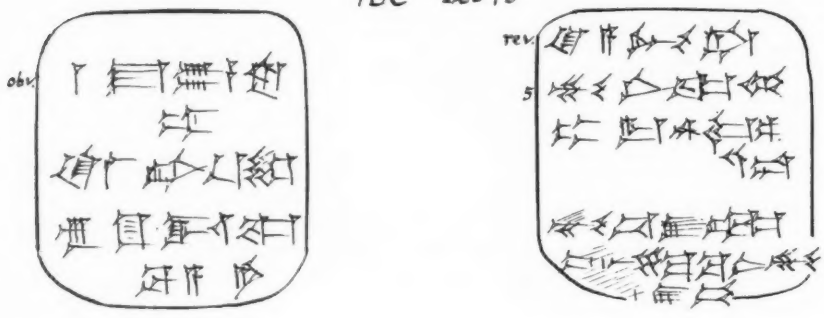

List of published texts used in this article

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Sirrimu (non **purîmu*) "âne sauvage"

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Dans un petit lot d'objets récemment offerts au Musée du Louvre se trouve un fragment[1] de *kudurru* - ou monument analogue - qui permet de rectifier une lecture longtemps tenue pour exacte[2].

Ce fragment, assez court et très fruste en son centre, ne nous livrerait guère que trois lignes complètes si les vestiges qu'il nous laisse entrevoir par ailleurs ne s'ajustaient exactement à une phraséologie bien connue.

Son écriture[3] le situe à peu près entre Melišipak II et Enlil-nadin-apli. Mais la graphie $^{\text{il}}Sin$ (XXX) semble l'écarter des *kudurru* proprement cassites[4]. D'autre part, la mention de Šuqamuna et Šumalia (l. 4) ne permet pas de descendre après Nabuchodonosor I (cf. Steinmetzer, Die babylonischen Kudurru ... 242). Enfin, l'emploi de AŠ pour *ina* (l. 10), dans les inscriptions officielles tout au moins, apparaît justement comme une innovation de ce roi, et une innovation que ses successeurs immédiats n'ont probablement pas approuvée[5]. Ainsi, nous pouvons avec une grande vraisemblance dater de son règne le fragment du Louvre, où nous lisons:

[.....]	[.....]
[.....].. ^{il}A-*nu*[-*um*]	[.....].. Qu'Anu,
[^{il}]*É?-a* *ù* ^{il}En[-*líl*]	Ea et Enlil

1 AO 20009. 'Calotte' de pierre calcaire beige rosée, très épaisse au centre mais très mince sur les bords. 0,151 (h.) x 0,157 (l.).

2 Rectification du même genre que celle qui est intervenue jadis pour *šer'ânu* (non **bu'ânu*). Cf. Zimmern, Ištar und Ṣaltu I 34s.

3 Remarquer en particulier la coexistence des formes employées pour IŠ, RU, SU, et AN.

4 Cf. infra, n. 9.

5 Cf. BBSt. N° 6, I, 48 et Hinke, BE, D, 4, 142ss. passim, pour Nabuchodonosor I. Dans les *kudurru* cette idéographie n'est reprise, semble-t-il, qu'après la dynastie d'Isin (cf. BBSt. N° 9, I, 46ss., III, 10 (Nabu-mukin-apli), BBSt. N° 36, passim (Nabu-apla-iddina), etc.).

AO.20009

[*ez-z*]*i?-iš lik-kil-mu-šu*	avec colère le fixent du regard!
$^{\text{il}}$Šu?-qa?-mu?na? $^{\text{il}}$Šu-ma-li-i[*a?*]	Que Šuqamuna et Šumalia
5' *li-ru-*[*r*]*u-šu išid-su li-is-su-ḫ*[*u*]	le maudissent, arrachent son fondement,
ù zêr-šu [*lil?*]*-qù-tu $^{\text{il}}$Sin bêlu rabû*	et glanent sa semence! Que Sin, le grand seigneur,
iš-ru-[*b*]*a-a zu-mur-šu*	d'une lèpre son corps,
ki-ma ṣubâti?[6] *li-lab-biš-ma*	comme d'un vêtement, habille,
ki-ma si-ir-rim ṣe-e-ri	et qu'ainsi, tel un âne sauvage de la steppe,
10' [*in*]*a ka-ma-a-ti li-ir-tap-pu-ud*	hors les murs il erre!
$^{\text{il}}$Šamaš daiân mâti ṣi-ru	Que Šamaš, juge suprême du pays,
[.....]	[.....]

Notes

ll. 1's: Dans les *kudurru* comme ailleurs l'ordre normal de la triade suprême est: Anu - Enlil - Ea. On ne voit pas pourquoi cet ordre n'est pas respecté ici.

ll. 6'ss.: La lèpre, arme redoutée du dieu-lune, se retrouve dans les *kudurru* suivants:

(A) MDP, II, pl. 21ss. (VI, 41ss.)	Melišipak II
(B) MDP, X, pl. 11ss. (IV, 15ss.)	Melišipak II
(C) MDP, VI, pl. 9ss. (V, 12ss.)	Marduk-apla-iddin
(D) MDP, VI, pl. 11 (III, 7s.; cf. IV, 1ss.) [7]	Marduk-apla-iddin

6 Les traces évoquent LU plutôt que KU. Faut-il voir là une variante graphique de KU ou une équivalence inédite de LU, dérivée de *ṣabâtu*? D'après les parallèles cités plus loin la lecture ne fait pas de doute.

7 Je ne cite ces passages que pour mémoire. Le premier (MDP, VI, pl. 11, IV, 1ss.), après collation de l'original, me semble devoir être lu ainsi:

[.....]*ma-*[*ṣ*]*i?-*[*r*]*a ù(!)*
[*k*]*u-dur-ra li-ki-im-šu-ma*
[*ki*]*-ma* ANŠE.EDIN.NA
[*E*]DIN *li-ir-pu-ud* etc.

La lecture de la l. 1 est fort hypothétique. La l. 2 commence par un signe *ù*, rejet de la colonne III assez visiblement marqué comme tel. La lecture *dur* (non *tak*) est confirmée par la forme du même signe ibid. I, 3 (*ti-túr-ri*). Le couple *miṣru u kudurru* est fréquent dans les *kudurru*: il définit la propriété foncière par ses limites et ses titres. *Masiru(?)* paraît un doublet de *miṣru*. A la l. 3 le premier signe qui manque, est *ki* plutôt que *e*, étant donnés les parallèles et le fait que ANŠE.EDIN.NA n'est pas suivi du pluriel. Le coupable ainsi dépouillé de sa terre (et de sa maison) n'en serait peut-être pas réduit à vivre 'comme un âne sauvage',

(E) IR 70 (III, 18ss.)	Marduk-nadin-aḫḫe
(F) BBSt. N° 7 (II, 16ss.)	
(G) BBSt. N° 8 (IV, 7ss.)	
(H) OBI I, 2, N° 149 (III, 6ss.)	Marduk-aḫḫe-eriba
(I) BBSt. N° 9 (I, 46ss.)	Nabu-mukin-apli
(J) RA 16, 125ss. (IV, 6ss.)	Marduk-zakir-šumi
(K) VS, I, N° 70 (V, 9ss.)	Sargon II
(L) BRM, IV, N° 50 (V, 16ss.)	Sin-šar-iškun[8]
(M) UET, I, N° 165 (II 23ss.)	non-datés
(N) BBSt. N° 11 (III, 2ss.)	
Cf. aussi (O) MDP, VI, p. 47 (10ss.)	

Elle est le plus souvent réclamée de Sin[9] seul, rarement de Sin en même temps que d'autres dieux (de Sin, Šamaš et Ištar, dans J: IV, 6; de tout le panthéon invoqué, dans C: V, 12 - VI, 10). Dans les *kudurru*, le terme lui-même est en général rendu phonétiquement (*iš-ru-ba-a*)[10], mais G: IV, 8 présente l'idéogramme SU.ḪAR.ŠU.ŠAB [11] suivi du com-

si une autre malédiction — aujourd'hui disparue — ne déterminait son éviction de la cité; mais la lèpre figure déjà à III, 7s. ce qui l'exclut d'ici, selon toute vraisemblance.

Pour MDP, VI, 47, 10ss., un estampage me permet de reprendre ainsi la transcription de Scheil:

10	[^{il}*Nin.*] *gír.sú bêl iš-pi-ki*	[Que Nin]girsu, maître du semoir,
	[.....]-*šu liš-ri-iq*	vide s[es greniers(?)!]
	[^{il}*Gu-l*]*a bêltum rabîtum*^{tum}	[Que Gul]a, la grande dame,
	[.... *s*] *i-i*[*m*]-*m*[*a l*] *a-az-za*	[....] .....
	[*i-na zu-u*] *m-ri-*[*šu liškun?*]*-ma*	[en son] corp[s] ayant [placé.]
15	[.....] .. *li-ḫal-li-qú*	[..... soient per]dus!
	[^{il}*A-n*]*u-*[*ni-tum? ašibat?*] *É.ul.maš*	[Qu'An]u[nit, qui habite?] l'Ēulmas
	[..... *k*]*îma ú-ma-am ṣêri*	[..... et qu'ainsi, t]el une bête sauvage,
	[*ṣêra li-ir*]*-pu-ud* etc.	[la steppe il bat]te! etc.

L. 10: Epithète nouvelle, et des plus caractéristiques, pour Ningirsu, qui, dans les *kudurru* apparaît comme une divinité agricole (cf. son symbole: la charrue à semoir, en particulier dans Scheil, RA 34, 42). — L. 11: Cette malédiction est unique en son genre, semble-t-il, mais on trouve des présages analogues dans les collections divinatoires. — L. 13: Je ne connais pas de traduction satisfaisante pour cette maladie dont Gula paraît avoir le secret et par laquelle le patient finit par 'baigner dans le pus et le sang'. — L. 17: Bien que cette malédiction se termine comme beaucoup de menaces de lèpre, je ne crois pas qu'Anunit partage le triste privilège de Sin.

8 Avec Scheil (ZA 11, 47ss.), malgré Clay, BRM, IV, 47s.

9 Ecrit ^{d}EN.ZU dans les *kudurru* cassites et ^{il}*Sin* (XXX) par la suite; mais BBSt. N°3 (de Melišipak II) porte déjà, par exception, cette seconde graphie (VI, 3).

10 Le scribe sargonide de K écrit (V, 10): *iš-ru-pa-a*, ce qui incline à lire *iš-ru-pu* dans L: v. 17. Entendait-on ainsi rapprocher le mot de *šrp*?

plément phonétique *a* qui confirme la lecture fournie par les nombreux parallèles. Si on hésite à nommer un tel mal on peut aussi le désigner par une périphrase: "châtiment sans recours" (B: IV, 17), ou: "majeur" de Sin[12].

Mais il y a sans doute lèpre et lèpre[13]. On précise à l'occasion que la lèpre ainsi réclamée doit être contagieuse et grave (C: VI, 14) ou, plus fréquemment, qu'elle doit habiller, envelopper tout le corps[14] - c'est à dire qu'elle ne pourra demeurer discrète - : *zumur-šu* (ou encore: *pagar-šu; gimir lâni-šu*) *lila/ibbiš; lilabbis-su; luḫallip-šu; limallî/û-šu*, comme d'un vêtement, d'une tenue, d'un manteau: *kîma ṣubâti; kî(ma) lubâri; kîma naḫlapti*. On souligne surtout les terribles conséquences de ce mal: "Que (Sin) leur fasse ainsi perdre leur position[15] au temple[16] ou au palais." (L: V 18). Pis encore: "Qu'enchaîné (le contrevenant) soit chassé par la porte de sa ville, qu'étant ainsi forcé de gîter hors les murs, jusqu'à son dernier jour il se gonfle(?) d'eau, et que de ses concitoyens il n'approche plus." (C: VI, 16ss.)[17]. De façon plus brève on demande en général que les coupables errent (à jamais[18]) dans la zone dangereuse - elle commence au pied même des remparts - où bêtes et démons viennent chercher leur proies (cf. ci-dessous).

11 C'est à dire, selon Delitzsch dans Belser, BA, II, 144: qui déchire, dilacère, la peau. Cf. aussi Frank, ZA, 22, 102.

12 Il ne peut y avoir de doute sur le sens spécifique de cette périphrase. Cf. B: IV 17, et surtout: M: II, 24s.: *iš-ru-ba l[a te-ba-a] šer-ta-šu rabîta*^{ta} 'une lèpre sans remède, son châtiment majeur'. On rejoint ainsi la malédiction par Sin proférée dans l'épilogue du Code de Hammurabi (Verso, Col. 27, 41ss.). Le 'châtiment majeur' de Bêl-Marduk est l'hydropisie (rectifier mon erreur sur ce point dans RA, 36, 32 et n. 4: lire ^{il}*En.lil*, avec E. W. Moore).

13 On admet depuis longtemps que *išrubu* designe, tantôt la lèpre proprement dite, tantôt une lèpre moins dangereuse. D'où: certains degrés dans les suites sociales de la maladie (cf. infra, n. 21).

14 Les expressions plus faibles ou plus vagues sont rares: *i-na zu-um-ri-šu li-šab-šu* (H: III, 7), *li-ša-aš-ši zu(?)-u[m-ra-šu(?)]* (M: II, 25).

15 *Ma(l)-za-sa-šu(l)-nu* me paraît être la seule lecture possible du premier mot de L: v. 18. Je rattache ce *maz(z)as(s)a-šunu* à *maz(z)as(s)u* (néo-assyr. pour babyl. *maz(z)altu* < *maz(z)aztu, manzaztu*). Sur le sens précis de 'position (sociale), fonction (publique)', cf. par exemple, à basse époque, San Nicolò-Ungnad, NRVU, Glossar, 92 et 116.

16 Cf. sur ce point: Zimmern, Ritt. N° 24, 32 et Frank, SBR, I, 128ss.

17 L'interprétation proposée a pour base une nouvelle collation du passage: le dernier signe de la l. 18 ne peut être TA mais est probablement AM. Le mot *ma-a-am* ainsi rétabli évoque, soit des malédictions sur l'eau de boisson (cf. Landsberger, OLZ, 1931, 131), soit l'hydropisie si fréquemment reclamée contre les coupables eventuels et souvent associée à la lèpre. La forme verbale *lit-nik/q* pourrait peut-être se rattacher à un verb **êku* (doublet de *ekû*) 'manquer de, être déficient en' (Thureau-Dangin, RA, 33, 54). Je crois cependant qu'une dérivation de *enêqu* 'téter, sucer' est plus vraisemblable. Je transcris donc: *lit[[-te]]-niq* (cf. les autres erreurs(?) graphiques du passage, l. 12 et l. 15). De toute façon, on ne saurait s'appuyer sur un tel exemple pour établir, avec Scheil, une valeur *lis* (ou: *lit*) de LID.

18 *A-di ûm bal-ṭû* 'jusqu'à son dernier jour' (A: VI, 52; C: VI, 18), *a-di ûmi napšâti-*

11. 9'ss.: Cette formule est à peu près stéréotypée: "Qu'ainsi, tel un âne sauvage, il erre hors les murs! (*kî(ma)* ANŠE.EDIN.NA *ina kamât*[19] *âli-šu lirtappud*[20]) (E: III, 20s. F: 88; I: I, 47s.; M: II, 26s.). Variantes légères dans l'expression verbale: *a-a ir-bi-iṣ* "qu'il ne puisse (même) pas gîter!" (H: III, 8); *li-šib* "qu'il habite!" (N: III, 5)[21]. Autre formule pratiquement équivalente: *kîma umâm sêri ṣêra lirpud* "qu'ainsi, tel une bête sauvage, il batte la steppe!" (A: VII, 1s.[22]; J: IV, 9s.; O: 16s.)[23]. L'étroit parallélisme entre la première de ces formules et AO 20009, 9'ss. suffirait à montrer que *kîma si-ir-rim* = *kî(ma)* ANŠE.EDIN.NA, mais la lecture *BU-ri-mu* de cet idéogramme est bien attestée[24]. D'ailleurs, encore que l'idéographie l'emporte dans la plupart des textes[25], on en retrouve çà et là la monnaie phonétique, cf. par exemple: *BU-ri-mu* dans Von Soden, LTBA, II, N° 13, 7[26] et Langdon, Bab. 12, 15 et pl. 1 l. 20: *BU-ri-me/i*, dans CT, 15, pl. 19, 24 (version sumérienne, ibid. 23: anše.edin.na) et IR 40, IV, 21ss.; *BU-rim ṣêri* dans IVR[2] 56, III, 48 et duplic. Il faut donc manifestement, dans ces divers passages, donner à BU sa valeur *sir*[27].

l. 11': Ici commence une malédiction par Šamaš qui se poursuivait à la colonne suivante, c'est à dire, si on juge par la forme du fragment, sur une autre face du *kudurru*.

šu 'jusqu'à son dernier souffle' (F: II, 17).

19 Synonyme: *aḫât* (même idéog. BAR) *âli*, dans B: IV, 18s.

20 K: V, 12: *liš-tap-pu-ud*. Sur le flottement *š-r* devant consonnes, cf. en dernier lieu: G. Meier, ZA, 45, 197.

21 Dans ce passage, l'accent n'est plus mis sur la vie errante du lépreux, et la comparaison avec l'âne sauvage y serait donc mal venu. Même remarque pour C: VI, 16ss. cité supra. Vraisemblablement, certains 'lépreux' étaient tolérés — enchaînés à leurs cabanes — sous les murs de la ville, tandis que d'autres en étaient tenus loin et ne pouvaient que furtivement y glaner quelques rebuts.

22 La formule est ici encadrée par: *a-di ûm bal-tu bît-su li-ṣa-mi-ma ... re-bi-it âli-šu a-a ik-bu-uṣ* ' qu'ainsi jusqu'à son dernier jour privé de sa (propre) maison ..., et qu'il ne foule plus la chaussée de sa ville!

23 Cf. aussi D: IV, 1ss. (supra, n. 8).

24 Par exemple dans la 13[0] tablette de ḪAR.*ra:ḫubullû* (Oppenheim-Hartman, JNES, IV, 174).

25 Aux nombreux exemples cités dans les dictionnaires pourraient s'en ajouter bien d'autres: Harper, ABL, N° 449, 9: N° 1000, 8: Johns, ADD, N° 121, 2: etc.

26 Dans cette liste, *[(ḫ)a-r]a-du* est donné comme synonyme de *BU-ri-mu*. Cet emprunt à l'araméen n'est pas inattendu dans ce fragment (cf. Von Soden, ibid., p. 4). Les vieilles langues sémitiques du Nord disposaient ainsi de trois vocables différents (canan. *pr'*; aram. *'rd*; babyl. *sr̄m*) pour désigner l'âne sauvage. Faut-il en conclure que ces groupes ethniques qui, dès avant leurs séparation, connaissaient et utilisaient l'âne domestique (*ḥmr*, femelle: *'tn*), n'ont rencontré l'âne sauvage que par la suite? Ce serait, en tout cas, difficilement conciliable avec l'hypothèse du 'berceau' syrien puisque l'âne sauvage a toujours hanté cette région.

27 A côté de *sirrimu* 'âne sauvage', il faut reclasser aussi dans les lexiques *(uqnû) sirrimânu* 'turquoise, couleur d'âne sauvage' (R. C. Thompson, DACG, 130), et, sans doute, **sirrimtu* 'ânesse sauvage' (IIR 10, N° 2, 34). Sur les représentations babyloniennes d'ânes etc., cf. Van Buren, An. Or. 18, 28ss. (importante bibliographie

Solstices and Equinoxes in Babylonian Astronomy during the Seleucid Period

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1. Introduction and Summary

In a paper published in this Journal, vol.1 p.143 to 148, entitled "A Table of Solstices from Uruk" I have shown that two joining fragments of a tablet in Istanbul, U 107 and U 124, contain the computation of the dates of consecutive solstices, originally covering about 90 years, probably from 138 Seleucid Era (-173) to 229 (-82). Shortly thereafter, A. Sachs found a group of solstices and equinoxes in a large "observation" text in Chicago, A 3456, certainly also from Uruk, covering the years 116 to 132 (-195 to -179). I then discovered that these dates were not observed but were derived from a fixed scheme whose backbone is the above-mentioned list of solstices. After this initial success, Sachs and I investigated all dates of solstices and equinoxes available to us from texts of the Seleucid period — texts which belong to the Uruk archive as well as the Babylonian archive. It will be shown in this paper that the same scheme holds for all of them.

One of the consequences of this discovery is the insight that no solstitial or equinoctial date which is found in "observation" texts can be evaluated as an observation and utilized for comparison with modern calculation. In particular, all conclusions from such dates with respect to precession are not valid.

2. Definitions

Intercalations. Years which contain a second Adar, denoted here by XII_2, are called *-years. Years with a second Ulul (VI_2) are called **-years. During the whole Seleucid period the "Metonic" 19-year cycle, containing six *-years and one **-year in each cycle, was in use.

Tithi. The 30th part of a mean synodic month (which is slightly longer than $29\frac{1}{2}$ days) is called one tithi, following a similar use in Sanscrit astronomical works. We denote numbers expressed in these units by a raised τ, as distinguished from d for days, m for months ($1^m \equiv 30^\tau$) and y for years.

We call a number "reduced modulo 30" if we disregard multiples of 30. This terminology is especially convenient in dealing with tithis. If we, e.g., add 11^τ to 21^τ we are often not interested in the 30^τ which make up one synodic month but need only the number 2^τ which remains after subtracting a whole month.

Numbers are always written in the sexagesimal system, the semicolon being used for the separation between integers and fractions. Thus $2;15^\tau$ means $2\frac{1}{4}$ tithis.

3. The Uruk Scheme

The following is a short section from the above-quoted text from Uruk, U 107 + U 124, which gives a list of solstices

1.	2,24	III	19;38,10
	2,25*	III	30;41,20
	2,26	III	11;44,30
	2,27	III	22;47,40
5.	2,28*	IV	3;50,50
	2,29	III	14;54
	2,30	III	25;57,10
	2,31**	IV	7; 0,20

The first column gives the years of the Seleucid Era (henceforth abbreviated S.E.) with the relevant character of the year, the second column shows the lunar month, the third gives the "day" expressed in tithis. The dates are developed by adding $12^m + 11;3,10^\tau$ from line to line. If we repeat this process 19 times we obtain a date 19 years + $0;0,10^\tau$ later. This explains the choice of the difference $11;3,10^\tau$. Indeed, 19 years are one complete cycle of 12 ordinary years (of 12^m each) and 7 leap years (of 13^m each). The corresponding total of 3,55 months is equal to $1,57,30^\tau$. If we distribute this amount into 19 equal parts we find an excess of $11;3,9,28,\ldots^\tau$ over 12^m. Thus $11;3,10^\tau$ is a convenient rounding-off of this difference. The error involved is very small indeed.

Instead of returning after each cycle to exactly the same date we add $0;0,10^{\tau}$ as stated before. Thus 6 cycles, or 114 years, accumulate only $0;1^{\tau}$ i.e. less than 1/60 of a day. It requires 6840 years for the error to amount to 1^{τ}.

Using the above list of solstices we can now write down the corresponding dates for solstices for a sequence of years which are 19 years apart, e.g., for all **-years in the Seleucid Era. For our purposes the following list suffices:

37**	IV	6;59,20
56**	IV	6;59,30
1,15**	IV	6;59,40
1,34**	IV	6;59,50
1,53**	IV	7
2,12**	IV	7; 0,10
2,31**	IV	7; 0,20
2,50**	IV	7; 0,30

etc.

Lunar and planetary ephemerides often contain dates which are obtained from more accurately computed dates by simply disregarding fractions. Contrary to modern usage in such cases, fractions are simply dropped without rounding-off to the next higher unit, however close they may come to one. If we apply this procedure to the above list, we see that the Uruk scheme results for all **-years before S.E. 1,34** in the date "6" , and from S.E. 1,53** onwards in "7" . This remains correct for 6840 years in both directions.

Having found the exact dates for all **-years we obtain the dates for the intermediate years by adding 11;3,10 for each year. Thus we obtain, e.g., for the cycle which begins with S.E. 1,53 IV 7 :

1,53**	IV	7
1,54	III	18; 3,10
1,55*	III	29; 6,20
1,56	III	10; 9,30
1,57	III	21;12,40
1,58*	IV	2;15,50

etc.

and for the abbreviated dates

1,53**	IV	7
1,54	III	18
1,55*	III	29
1,56	III	10
1,57	III	21
1,58*	IV	2

etc.

These dates are often obtainable by adding 11 each step and reducing the result, if necessary, modulo 30. And we know that this rule holds for the whole cycle because it is not until the 19th step that the fractional parts add up to $1;0,10^{\tau}$. Thus we obtain all abbreviated dates beginning with 1,53** IV 7 by adding 11 in each step, except for the **-years, where we must add 12.

In the cycles before S.E. 1,53**, the 12-jump occurs in the years following a **-year, as is seen from the following example:

1,33	III	25;56,40	abbreviated	25
1,34**	IV	6;59,50		6
1,35	III	18; 3		18
1,36	III	29; 6,10		29

This completes the rules for the extension of the Uruk solstice scheme for all years of the Seleucid era (and far beyond, as long as the 19-year cycle is applied) with either accurate or abbreviated dates.

4. A 3456

The tablet A 3456 of the Oriental Institute of the University of Chicago concerns Mercury, as was recognized by Prof. Schaumberger, who drew our attention to this text. Excellent photographs were put at our disposal by the Oriental Institute. The text contains both computed and observed elements of the movement of Mercury and, in addition, entries for solstices (^{d}*šamaš* du-*sa*) and equinoxes (**lál-*tú***). The following gives the complete list of all these entries for summer and winter solstices (denoted as S.S. and W.S. respectively) and vernal and fall equinoxes (V.E. and F.E.),so far as preserved. A few more are now destroyed, but not all years in the text contained all

entries, as is evident from several well preserved sections.

S.S.	F.E.	W.S.	V.E.
		1,58* X 8	1,58* XII_2 11
	1,59 VI 16		1,59 XII 22
			2,1* I 3
		2,1* X 11	
2,2 III 1[6]	2,2 VI 19	2,2 IX 22	2,2 XII 25
			2,3* XII_2 6
		2,6* X 6	
			2,7 XII 20
			2,9* XII_2 12

The upper part of the 6 in the date of the S.S. of 2,2 is preserved.

These numbers satisfy three important relations:

(a) The numbers in a vertical column show a constant difference of 12 month and 11 "days".

This is proved, e.g., by the following completion of our list:

W.S.			V.E.		
1,58*	X	8	1,58*	XII_2	11
[1,59	IX	19]	1,59	XII	22
[2,0	IX	30]	2,1*	I	3
2,1*	X	11		[XII_2	14]
2,2	IX	22	2,2	XII	25
[2,3*	X	3]	2,3*	XII_2	6
[2,4	IX	14]	[2,4	XII	17]
[2,5	IX	25]	[2,5	XII	28]
2,6*	X	6	[2,6	XII_2	9]
			2,7	XII	20
			[2,9*	I	1]
				XII_2	12

(b) The date 2,2 III 16 for the S.S. agrees with the Uruk scheme in its abbreviated form, as can be seen by continuing the list given in §3:

[1,58* IV 2]
[1,59 III 13]
[2,0 III 24]
[2,1* IV 5]
2,2 III 16

(c) The dates in a horizontal line increase by 3 months and 3 "days". Using the dates restored in the two previous steps we obtain

S.S.	F.E.	W.S.	V.E.
[1,59 III 13]	1,59 VI 16	[1,59 IX 19]	1,59 XII 22

Similarly, if we apply rule (a) to the restoration of F.E.'s, we obtain four lines lower down

2,2 III 1[6] 2,2 VI 19 2,2 IX 22 2,2 XII 25

Combining rules (a) and (c), we observe that the interval from the V.E. to the subsequent S.S. is only 3 months and 2 "days" because three intervals of 3 months and 3 "days" require a last interval of 3 months and 2 "days" for the completion of 12 months and 11 "days", which constitute, according to (a), the total progress during a whole year.

5. Interpretation

We have written "days" in quotation marks because it is evident that in the above rules the 11 "days" are nothing but the rounded-off tithis of the difference $11;3,10^{\tau}$ in the Uruk scheme. This distinction, however, has very little practical importance because in a real lunar calendar all real dates will never deviate essentially from a tithi number.

Once we have seen in (b) that the S.S. dates are the abbreviated dates of the Uruk scheme, the question arises whether also the other dates, obtained from rule (c), should not contain fractional parts. It is obviously the intention of rule (c) to space the four dates equidistant as far as possible. Thus we should consider the possibility of an exact equidistribution where consecutive phenomena are separated from one another by exactly the fourth part of $11;3,10^{\tau}$. This fourth part being $2;45,47,30^{\tau}$ and using the accurate values of the Uruk scheme, given in §3, we would obtain the following accurate values for the first two lines of dates in A 3456:

	S.S.		F.E.		W.S.		W.E.	
1,58*	IV	2;15,50	VII	5;1,37,30	X	7;47,25	XII_2	10;33,12,30
1,59	III	13;19	IV	16;4,47,30	IX	18;50,35	XII	21;36,22,30

or the abbreviated dates, disregarding fractions,

1,58*	IV	2	VII	5	X	7	XII_2	10
1,59	III	13	VI	16	IX	18	XII	21

as compared with

1,58*	[IV	2]	[VII	5]	X	8	XII_2	11
1,59	[III	13]	VI	16	[IX	19]	XII	22

required by the rules of A 3456.

It is easy to compute the accurate dates for a whole 19-year cycle, simply by continuously adding 2;45,47,30. If we then again drop the fractions we obtain for the whole cycle, beginning with a **-year, an "abbreviated accurate scheme". In the table given here we compare it with the "simplified scheme" of A 3456 in which the difference 3 is consistently used from S.S. to V.E. and the difference 2 between V.E. and S.S.

Abbrev. Accurate Scheme						Simplified Scheme					
	S.S.	F.E.	W.S.	V.E.			S.S.	F.E.	W.S.	V.E.	
**	7	9	12	15	**	**	7	10	13	16	**
	18	20	23	26			18	21	24	27	
*	29	1	4	7	*	*	29	2	5	8	*
	10	12	15	18			10	13	16	19	
	21	23	26	29			21	24	27	30	
*	2	5	7	10	*	*	2	5	8	11	*
	13	16	18	21			13	16	19	22	
	24	27	29	2			24	27	30	3	
*	5	8	10	13	*	*	5	8	11	14	*
	16	19	22	24			16	19	22	25	
*	27	30	3	5	*	*	27	30	3	6	*
	8	11	14	16			8	11	14	17	
	19	22	25	27			19	22	25	28	
*	30	3	6	8	*	*	30	3	6	9	*
	11	14	17	20			11	14	17	20	
	22	25	28	1			22	25	28	1	
*	3	6	9	12	*	*	3	6	9	12	*
	14	17	20	23			14	17	20	23	
	25	28	1	4			25	28	1	4	
**	7	9	12	15	**	**	7	10	13	16	**

In contrast thereto, the abbreviated accurate scheme shows the difference 2 slowly shifting from column to column, as indicated by the vertical lines. To the right of

	Seleucid Era															S.S.	F.E.	W.S.	V.E.	
**						1,53	2,12	2,31	2,50	3,9	3,28	3,47	4,6	4,25	4,44	IV 7	VI$_2$ 10	IX 13	XII 16	**
	0	19	38	57	1,16	1,35	1,54	2,13	2,32	2,51	3,10	3,29	3,48	4,7	4,26	4,45	III 18	VI 21	IX 24	XII 27	
*	1	20	39	58	1,17	1,36	1,55	2,14	2,33	2,52	3,11	3,30	3,49	4,8	4,27	4,46	III 29	VII 2	X 5	XII$_2$ 8	*
	2	21	40	59	1,18	1,37	1,56	2,15	2,34	2,53	3,12	3,31	3,50	4,9	4,28	4,47	III 10	VI 13	IX 16	XII 19	
	3	22	41	1,0	1,19	1,38	1,57	2,16	2,35	2,54	3,13	3,32	3,51	4,10	4,29	4,48	III 21	VI 24	IX 27	XII 30	
*	4	23	42	1,1	1,20	1,39	1,58	2,17	2,36	2,55	3,14	3,33	3,52	4,11	4,30	4,49	IV 2	VII 5	X 8	XII$_2$ 11	*
	5	24	43	1,2	1,21	1,40	1,59	2,18	2,37	2,56	3,15	3,34	3,53	4,12	4,31	4,50	III 13	VI 16	IX 19	XII 22	
	6	25	44	1,3	1,22	1,41	2,0	2,19	2,38	2,57	3,16	3,35	3,54	4,13	4,32	4,51	III 24	VI 27	IX 30	I 3	
*	7	26	45	1,4	1,23	1,42	2,1	2,20	2,39	2,58	3,17	3,36	3,55	4,14	4,33	4,52	IV 5	VII 8	X 11	XII$_2$ 14	*
	8	27	46	1,5	1,24	1,43	2,2	2,21	2,40	2,59	3,18	3,37	3,56	4,15	4,34	4,53	III 16	VI 19	IX 22	XII 25	
*	9	28	47	1,6	1,25	1,44	2,3	2,22	2,41	3,0	3,19	3,38	3,57	4,16	4,35	4,54	III 27	VII 30	X 3	XII$_2$ 6	*
	10	29	48	1,7	1,26	1,45	2,4	2,23	2,42	3,1	3,20	3,39	3,58	4,17	4,36	4,55	III 8	VII 11	IX 14	XII 17	
	11	30	49	1,8	1,27	1,46	2,5	2,24	2,43	3,2	3,21	3,40	3,59	4,18	4,37	4,56	III 19	VII 22	IX 25	XII 28	
*	12	31	50	1,9	1,28	1,47	2,6	2,25	2,44	3,3	3,22	3,41	4,0	4,19	4,38	4,57	III 30	VII 3	X 6	XII$_2$ 9	*
	13	32	51	1,10	1,29	1,48	2,7	2,26	2,45	3,4	3,23	3,42	4,1	4,20	4,39	4,58	III 11	VII 14	IX 17	XII 20	
	14	33	52	1,11	1,30	1,49	2,8	2,27	2,46	3,5	3,24	3,43	4,2	4,21	4,40	4,59	III 22	VII 25	IX 28	I 1	
*	15	34	53	1,12	1,31	1,50	2,9	2,28	2,47	3,6	3,25	3,44	4,3	4,22	4,41	5,0	IV 3	VII 6	X 9	XII$_2$ 12	*
	16	35	54	1,13	1,32	1,51	2,10	2,29	2,48	3,7	3,26	3,45	4,4	4,23	4,42	5,1	III 14	VII 17	IX 20	XII 23	
	17	36	55	1,14	1,33	1,52	2,11	2,30	2,49	3,8	3,27	3,46	4,5	4,24	4,43	5,2	III 25	VII 28	X 1	I 4	
**	18	37	56	1,15	1,34											IV 6	VI$_2$ 9	IX 12	XII 15	**

these lines the simplified scheme shows dates higher by one than the abbreviated accurate scheme.

If we compare the list of dates from A 3456, given above in §4, with the two schemes, we immediately find the following result: The dates of A 3456 follow the simplified scheme, not the accurate scheme. We shall now show that the same result holds for all other available dates during the whole Seleucid era.

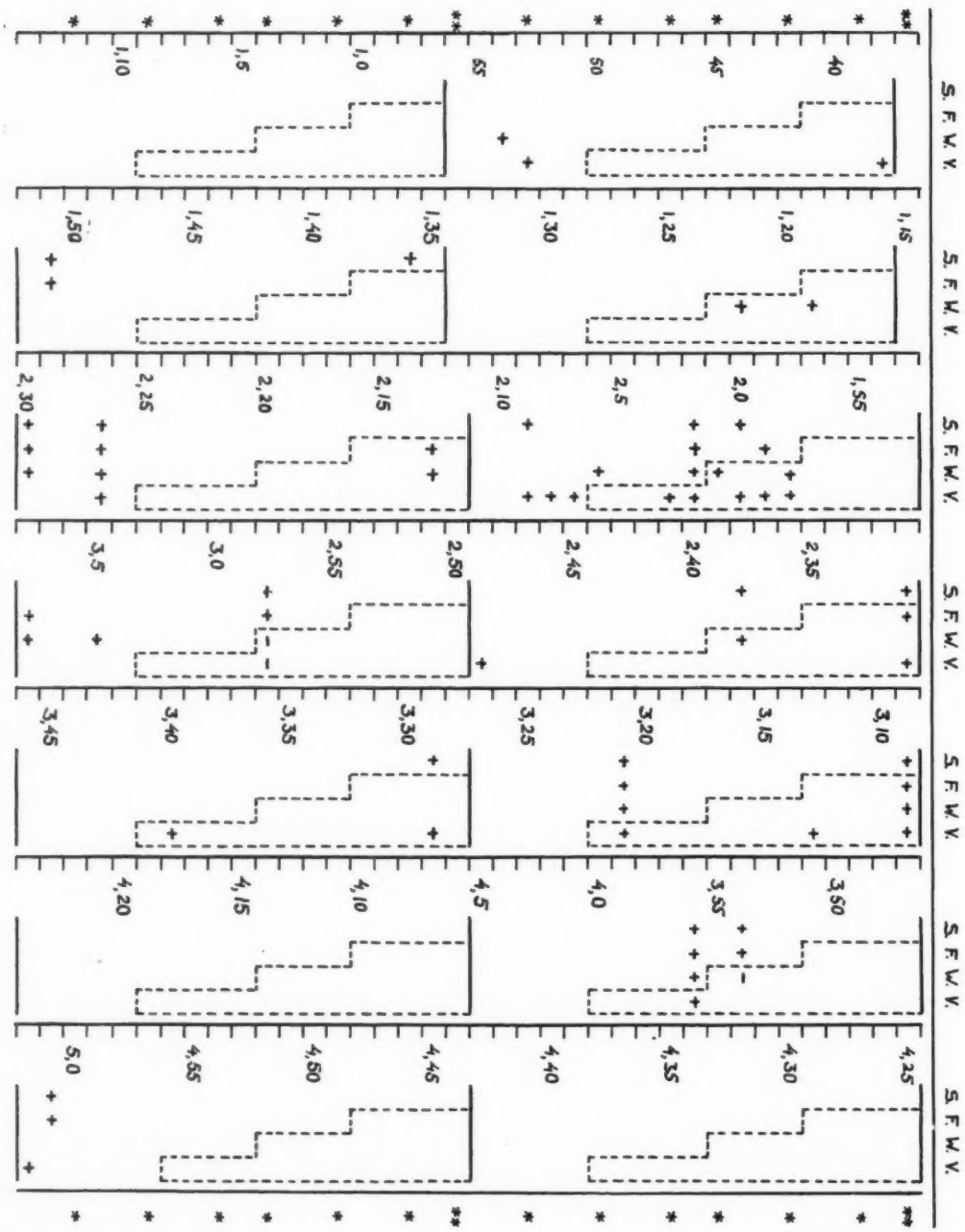
6. The Solstices and Equinoxes during the Seleucid Era

In this section we shall compare all available evidence from dates during the Seleucid Era with the two schemes. To this end we must first extend these schemes over the whole period in question. We have already found, in §3, the dates of the S.S.'s for the first years of each cycle; all intermediate dates are obtainable by adding 11 modulo 30. The result gives the S.S.'s for both schemes. Horizontally adding 3 gives all the remaining dates for the simplified scheme. For the abbreviated accurate scheme, however, all dates contained inside the framed area would be less by one[1]. Outside this area the dates are identical for both schemes.

The table shown on the following pages contains a total of 71 entries of dates found in "observation" texts, not including the original Uruk scheme. Each agreement with the simplified scheme is marked by a plus-sign[2]: If a plus-sign falls into one of the dotted areas, it indicates that the accurate scheme would lead to a date lower by one, whereas the text shows the numbers of the simplified scheme. The table contains 19 such cases, three of which are marked by a minus-sign to indicate disagreement. One of these cases (S.E. 3,54) is an obvious scribal error. We would expect 24 27 30 and find 24 27 24(!). The scribe subtracted three from the previous date instead of adding it. The only other discrepancy is found in 2,58, where we would expect 5 8 11 14 for the simplified scheme. The text seems to have 5 8 12(!) 15(!) or 17(!), thus supporting neither scheme.

1 It is easy to see that the addition of 0;0,10 in every cycle causes a slow modification of the frame. During the years under consideration, however, only the dates of the V.E.'s show this effect: from the year 4,57* onwards, the date XII_2 9 lies outside the frame.

2 Because of lack of space one plus-sign for the latest text (S.S.of 5,5*) is omitted in the graph.


S. F. W. V.
S. F. W. V.
S. F. W. V.
S. F. W. V.
S. F. W. V.
S. F. W. V.
S. F. W. V.

S.E.	Text	Passage	Copy	Transcription	Remarks
38	82-7-4,137+...	rev. 27	ZA 6 (1891) p. 235	ZA 7 (1892) p. 231	The final date given in the colophon seems to be S.E. 37 but the positions of the planets require S.E. 38
53*, 54	Rm. IV, 224	obv. 3, rev. 4	Schbg. Erg. Pl. 7	SSB II p. 558 f.	
1,19	Rm. IV, 397	obv. 36	ZA 6 (1891) p. 239	ZA 7 (1892) p. 245	The other entries require for the W.S. a date ≧ 27.
1,22	MLC 1860	unpublished			The simplified scheme
1,36*	Columbia 6x	obv. 10	JCS 1 (1947) p. 349		requires 27, the accurate scheme 26.
1,51	SH 81-7-6,101	obv. 8, 14	Schbg. Erg. Pl. 10	SSB II p. 531 (SS)	F.E. only in Schbg. Erg.
1,58*, 1,59	A 3456	unpublished			
2,0	SH 81-6-25,24	obv. 10	SSB I Pl. 7 No. 9	SSB I p. 90	S.S.
2,1* to 2,7	A 3456	unpublished			V.E.
2,8	Rm. IV, 435	obv. 1	SSB I Pl. 7 No. 10	SSB I p. 92, p. 94 = SSB II p. 481	V.E.
2,9*		obv. 7, rev. 4			S.S. and V.E.
	A 3456	unpublished			V.E. only
2,13	MLC 1885	unpublished			F.E. and W.S.
2,27	MLC 2195	unpublished			S.S., F.E., W.S., V.E.: 2,28* I 1
2,30	U 193 a	unpublished			Date computed from planetary positions
2,31**	U 194	unpublished			Date from colophon
2,38	Sp. 223	obv. 4, rev. 6	Schbg. Erg. Pl. 5	SSB II p. 494	
2,49	Sp. II, 22	rev. 11	ZA 3 (1888) p. 150	SSB II p. 555	
2,58*	Sp. 147	obv. 5, 13, rev. 20, 27	SSB I Pl. 8 No. 11	SSB I p. 96 ff., cf. also SSB II p. 496 f.	V.E.: copy and SSB II: 15; SSB I: 17; expected: 14
3,5	Sp. I, 469	line 5	Schbg. Erg. Pl. 7	SSB II p. 498	
3,8	Sp. 175+...	obv. 34	— — Pl. 11		F.E.: Sp. II, 782 line 4
		rev. 9	— — Pl. 12	SSB I p. 533	W.S.
3,9**	Sp. 129	obv. 2	Epping, AB Pl. 1 to 3	Epping, AB p. 153 ff.	V.E.: restore: 4 l[âl mu]
		obv. 20, rev. 41, 53, 69			S.S.: Epping AB p. 155: "7 oder 8"; expected: 7
3,13	Sp. I, 250+...	obv. 1	SSB I Pl. 6 No. 6	SSB I p. 100	
3,21	Sp. 128	obv. 16, 33, rev. 52, 69	Epping AB, Pl. 4 to 6	Epping AB p. 161 ff.	
3,29	Sp. 138	obv. 8, rev. 9	Schbg. Erg. Pl. 9	SSB II p. 503	same date for S.S.
	Sp. II, 909+...	obv. 7	— — Pl. 8		
3,40	Sp. I, 567	rev. 5	— — Pl. 6	SSB II p. 500	
3,54	SH 392	obv. 6	— — Pl. 5	— — p. 486	same date for S.S.
	Rm. IV, 189	obv. 6	— — Pl. 3	— — — —	
	SH 467	obv. 12	— — — —	— — p. 487	same date for F.E.
	Sp. II, 150	obv. 12	— — Pl. 4	— — p. 488	
		rev. 18			W.S.
3,56	Sp. II, 212	obv. 5	Schbg. Erg. Pl. 1	SSB II p. 472	date for S.S. III 15 (!) III 16
	SH 81-7-6, 103	obv. 6	— — Pl. 2		
		obv. 12		SSB II p. 473	same date for F.E.
	SH 81-7-6, 492	obv. 12	Schbg Erg. Pl. 1		
	SH 81-7-6, 103	rev. 18, 24	— — Pl. 2	SSB I p. 473 f.	W.S. and V.E.
5,1	Rm. IV, 356	obv. 6, 13	SSB I Pl. 9 No. 12	SSB I p. 106	The transcr. gives the date 15 for the S.S., the copy shows [illegible]. The scheme requires 14
5,2	Rm. IV, 348	obv. 1	Schbg. Erg. Pl. 8	SSB II p. 505	
5,5*	VAT 290+...	obv. 7		ZA 36 (1925) p. 66 f.	S.S.: III 29 as expected

Thus we have found the following result. There is not a single instance in favor of the accurate scheme. All other dates follow the simplified scheme with the exception of one scribal error and two doubtful numbers which are probably misreadings of 12 for 11 and 15 or 17 for 14. There can be no doubt that only the simplified scheme was in use during the Seleucid Era.

Two cases where an apparent discrepancy appears are worth mentioning. For S.E. 2,38 we would expect the date IX 30 for the W.S. while the text gives X 1. Similarly the V.E. for 3,13 should be XII 30 but is given as I 1 in the year 3,14*. The explanation is given by the latter instance, where the text specifically indicates that the preceding month had only 29 days. Consequently "XII 30" of one year is equivalent with I 1 of the next year. It is clear that the same must be the case for "IX 30" and X 1 though the corresponding entry in the text is destroyed. Obviously a similar shift might be expected for all computations with tithis whenever the last day of a month is involved.

7. Consequences

We can summarize our results in the following statements. During the whole Seleucid Era the summer solstices were computed according to the rule known from the Uruk text U 107+U 124, based on the constant difference of $12^{m}\ 11;3,10^{\tau}$. This difference is chosen such that all dates repeat in 19-year cycles. From the dates of the S.S. the remaining dates for F.E., W.S., V.E. are derived by adding $3^{m}\ 3^{\tau}$. These rules hold for all available texts regardless of whether they belong to the Uruk archive or to the Babylon archive.

Because this scheme is built upon the 19-year cycle of the civil calendar, it cannot be older than this cycle itself, which in turn originated at best in the beginning of the 5th century or perhaps even later. Though we do not know when the mathematical ephemerides for the moon were first invented, it seems plausible to assume that this happened not much later than perhaps one century after the inauguration of the 19-year cycle. The lunar ephemerides, however, show full awareness of the anomaly of the solar movement and the resulting inequality of the seasons. Thus we see that the astronomically incorrect equal spacing of the solstices and equinoxes appearing in our scheme is the result of a conscious adaptation to the civil calendar while the accurate theory was reserved for astronomical computations.

It is interesting to note that exactly the same situation is found in Maimonides's Mishna Torah. In the calendaric part of the Book of the Festivals the sun is said to enter the signs Aries, Cancer, Libra and Capricorn at the four *tequfôth* and these moments are said to be equidistant from one other. In the astronomical part of the same work, however, the inequality of the seasons is taken into account for the accurate computation of the new crescent.

Already Epping (AB p.151) found the equidistribution of the equinoxes and solstices from texts referring to the years S.E.3,9 and 3,21. Transforming the dates into the Julian calendar and computing the corresponding longitudes of the sun he found that the F.E. agreed best with the facts. Kugler discovered a few years later the accurate method followed by the lunar ephemerides, thus establishing the coexistence of an accurate scheme and a calendaric scheme. The greatly increased textual sources at his disposal were subjected by Kugler to the same procedure which Epping had followed before. Kugler computed solar longitudes (SSB II p.606 f.) and found again best agreement with the F.E. Considering, however, the influence of precession, he concluded that the V.E. must have formed the actual basis for the remaining dates.

We know now that the S.S. formed the starting point of the whole system and that what was meant to be maintained was the constancy of the dates within the 19-year cycle, not the agreement with the solar longitudes. Consequently, all relations between these dates and the effect of precession are without any interest whatsoever because these dates are no better or worse than the 19-year cycle itself, whose approximative accuracy was already known to the Babylonian astronomers (as it follows from the much more accurate period relations of the lunar and planetary theory). In passing, it may be remarked that Kugler's computations are furthermore vitiated by the fact that he was compelled to use a fixed moment for each date (midnight) whereas we now know that the numbers for the S.S. actually are tithis whose fractions are disregarded in the final texts.

It is now evident that our present material gives us no information as to the origin of the initial date of a solstice from which the whole scheme started.

Abbreviations

Epping AB,	J. Epping, Astronomisches aus Babylon, Ergänzungsheft 44 zu den Stimmen aus Maria-Laach, Freiburg 1889
F.E.	Fall equinox
Schbg. Erg.,	J. Schaumberger, Kugler, Sternkunde und Sterndienst in Babel, 3.Ergänzungsheft, Münster 1935
S.E.	Seleucid Era
S.S.	Summer solstice
SSB	F.X. Kugler, Sternkunde und Sterndienst in Babel, Münster, 1907 ff.
V.E.	Vernal equinox
W.S.	Winter solstice
ZA	Zeitschrift für Assyriologie

Concordance of Texts

Text	S. E.	Text	S.E.
A 3456	1,58* to 2,9*	Sp. 128	3,21
Columbia 6 x	1,36*	Sp. 129	3,9**
MLC 1860	1,22	Sp. 138	3,29
MLC 1885	2,13	Sp. 147	2,58*
MLC 2195	2,27	Sp. 175	3,8
Rm. IV, 189	3,54	Sp. 223	2,38
Rm. IV, 224	53*, 54	Sp. II, 150	3,54
Rm. IV, 348	5,2	Sp. II, 212	3,56
Rm. IV, 356	5,1	Sp. II, 250	3,13
Rm. IV, 397	1,19	Sp. II, 469	3,5
Rm. IV, 435	2,8	Sp. II, 567	3,40
SH 81-6-25, 214	2,0	Sp. II, 909	3,29
SH 81-7-6, 101	1,51	Sp. III, 22	2,49
SH 81-7-6, 103	3,56	U 107 + U 124	2,23 to 2,37
SH 81-7-6, 492	3,56	U 193a	2,30
SH 392	3,54	U 194	2,31**
SH 467	3,54	VAT 290+...	5,5*
82-7-4, 137	3,21		

On the Genitive after *umma* in the Amarna Tablets

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In BASOR 87.32-7 Professor Albright in his usual pioneering fashion has thrown new light on several historical and linguistic details of the tablet from Tell el-Hesī. Among other interesting observations is that in Note 7 on the occurrence of the genitive ending after the formula *umma*, which he believes is characteristic of Canaanite as opposed to Akkadian, which uses the nominative case after *umma*.

This observation led me to go through the *umma* formula in the Amarna tablets and to list the cases where *umma* is followed by a personal name and an appositional noun written phonetically, such as *ardu* and *ipru* (in most cases these common epithets are written as ideograms). Apparently the personal names are treated as indeclinables in most cases, but there are a few variations: *Ribaddi* and *Ribadda*, *Šubandi* and *Šubandu*.

More interesting is the fact that there are variations in the endings of appositional nouns, in perhaps more than 10 percent of the cases where the noun following *umma* is phonetically written. I give a few examples.

Kn. 141.3-4	(Ammunira of Berut)	*ipira*^{ra} / *a-pa-ru*
143.3-4	" "	*ipira*^{ra}
144.4-5	(Zimriddi of Sidon)	$^{am.}$*ḫa-za-nu*
232.3-5	(Zurata of Akko)	*ip-ru*
254.3	(Labaya)	*ip-ru*

While Albright is probably correct in saying that Canaanite writers usually employ a genitive after *umma*, the exceptions noted seem to warrant further study of the expression.

[The phenomenon which Albright pointed out and which Marcus discusses on the preceding page has a wider range than both these scholars realize.

As is familiar to every student of Hittite the *Umma* found at the beginning of numerous Boğazköy texts is regularly followed by the so-called "stem form",[1] i.e. a form which lacks a case suffix. The same form also occurs with geographic and other names in the genitive, not only after (Akkadian) prepositions but also when dependent on the preceding word KUR (Hittite *udne*) "country". Hittitologists have so far been unable to agree as to whether such forms are to be considered as Hittite or as Akkadian.[2] There is no disagreement, however, as to their function as genitives.

It is interesting to note that in Hittite texts the adverb *Umma* is interchangeable with the construct *AWAT* "word" which necessarily requires a following genitive. A good example is KBo V 2 which begins with *Umma*, but in the colophon (IV 63) exhibits *A-WA-AT* instead. A. Goetze]

1 Güterbock, JAOS 65 248ff.

2 F. Hrozný, Sprache der Hethiter 14; Sommer-Ehelolf, Papanikri 1; A. Goetze, Hattušiliš 52, 77f.; E.H. Sturtevant, Hittite Chrestomathy 84f.; J. Friedrich, Hethitisches Elementarbuch §347.

A Note on Certain Akkadian Terms for Door-Equipment

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The Gilgamesh fragment K 3588 (Thompson, EG Pl. 14), which Thompson assigns to Tablet IV (ibid. 33) whereas Schott would place it more plausibly at the beginning of Tablet VII (cf. ZA 42 113 ff.),contains the following passage (l. 44):

šu-ku-ki sa-ḫir-ki u šá-gam-ma-ki [....]

The same three terms, in the order *šugû*, *šagammu*, *sāḫiru*,confront us in Tablet 5 of the HAR-*ra=ḫubullu Series* V 5 ff.(cf. B. Meissner, AF I 65). All three have been identified by Meissner with good reason as parts of the door.

Additional references for the first term have been listed by B. Landsberger in ZA 44 166 and note 5. The spelling is this time *šu-ku-ú*. In view of the ideogram SUḪ, Landsberger would derive the word from the Sumerian and posit *suku* as the underlying value. This assumption would also furnish a simple explanation for the Akkadian variants *šugû* and *šukû*. In a recent note on *šukû* (MAOG XI 1/2 71-3), Meissner adds a new occurrence. He further favors Landsberger's derivation from the Sumerian as well as his rendering "Pfosten."

The purpose of this brief note is to call attention, in the first place, to yet another instance of *šukû*. HSS XIII 174 (=RA 36 159) 14f. speaks of *1 šu-ku-e ša erī ša dalâti*$^{pl.}$ "one pole of bronze for doors." What is of particular interest in this connection is the final *-e*, which obviously represents the Sumerian subject-case, thus confirming Landsberger's derivation.

The Nuzi text just cited mentions two other terms connected with the door (11-13): *6 ḫa-ar-gal-lu ša siparri ša dalāti*$^{pl.}$ *it-ti ki-in-ṣí-šu-nu*. The first of these (in the form *ḫa/urgullu*) has long been known (cf., e.g., HW 289a) and so has been its meaning "bar, bolt." The present occurrence establishes the reading of the first syllable as *ḫar* (not

ḫur); the second syllable, on the other hand, is read *-gal-*, which cannot be original in view of the common ideographic writing with GUL. We learn further that door-bolts were provided with something called *kinṣu*.[1] The usual meaning of this term, viz., "shin,"[2] is scarcely suitable in this context. If any reliance is to be placed on etymology, we should have to start with the corresponding verb, which means "bend, contract." At any rate, the obvious part which goes with door-bolts is the restraining member that receives the bar; in other words, the bolt-chamber, in the form of a bent or grooved piece. It would not seem to be too hazardous to relate this term to the architectural usage as found in the mathematical texts (cf. O. Neugebauer, Mathematische Keilschrifttexte II 22, under *qimṣu*) where the meaning is "wing (of a building)." Our passage may thus be translated "six bronze door-bolts together with their bolt-chambers."

To return to the Gilgamesh passage cited at the beginning, L. Oppenheim has recently proposed to translate *sāḫiru* and *šagammu* as the "lower hinge" and "upper hinge" respectively (Orientalia 17 34 n. 3). Since his Material Culture, to which Oppenheim refers for evidence, unfortunately still awaits publication, the author's detailed argument cannot be judged at present. On the face of it, however, Oppenheim's interpretation appears doubtful; for there is no reason to suppose that there was any distinction in Akkadian usage between the lower hinge and the upper. There was, however, a considerable difference between the two terminations of the door-pole. The lower end was often protected by a metal shoe or ferrule of the kind that have been recovered by the excavators of Assur.[3] The ideogram for *sāḫiru(m)*, *giš ud.sar.gál*,[4] means "the crescent-shaped object on the door."[5] The Akkadian equivalent yields "that which turns, revolves." Either description would fit "pole-ferrule" admirably. As for *šagammu*, its ideogram[6] (without

1 Taking the first sound as *k* instead of *q*, in accordance with the remarks of F.W. Geers, JNES IV (1945) 66.

2 For references see C.J. Mullo Weir, A Lexicon of Akkadian Prayers, p.172.

3 Cf. W. Andrae Das wiedererstandene Assur, p. 147 and n.1.

4 The last sign is also written phonetically as *gal*; cf. Meissner, AF I 37; MAOG IV 264.190; CT 12 41,10b; ŠL 381.219.

5 Cf. already P. Jensen, KB VI 460.

6 ŠL 78a.31.

the determinative *giš*) stands also for *rakābu* "ride"[7] and *šaqû* "be high."[8] Now the upper end of the door-pole could be adorned with a knob,[9] to which the term "rider," or the like, would be well suited. I would therefore translate the verse, which is addressed to the personified door of Huwawa's abode, as follows:

"Thy door-pole, thy pole-ferrule, and thy pole-knob [....]."

7 Ibid. 26.
8 Ibid. 33.
9 Andrae, op. cit., p. 11, fig.6.

Critical Reviews

P. Van der Meer, The Ancient Chronology of Western Asia and Egypt (= Documenta et Monumenta Orientis Antiqui, II). Leiden, E.J. Brill, 1947. 71pp. and 1 table.

This monograph is intended to be a guide through modern research on the chronology of the Ancient Near East, written originally for the practical use of students. The results are summarized in large synchronistic tables at the end of the book. A complete review of this work would require two diametrically opposite sections. One would contain a detailed discussion of the innumerable archeological data collected from a vast literature about the excavation of a large number of sites. The other section concerns the general methodological approach to ancient chronology as a whole. The present reviewer feels no competence to deal with the first part. However, a discussion of the method followed seems appropriate because it is rather independent of the archeological details.

The author's procedure can be described in its essence as follows. He accepts exactly one astronomical date, the solar eclipse of B.C. 763 June 15, recorded in the limmu list. From this starting point, he develops an Assyro-Babylonian chronology whose backbone is, beyond the traditional material, the Khorsabad King list. The rest of Western Asia, including Egypt, is reached by a network of relative chronology, essentially based on archeological evidence. This method is expressed in the remarkable statement (p. 25) that "astronomical observations can only be of use, when, on other grounds, the dates are already fixed".

It is rather obvious from many remarks in the introduction and throughout the whole book that the author has no grasp at all of astronomical chronology. It is surprising, however, to find statements like this (p. 63): "Egyptologists accepted the king lists at face value, and placed all the dynasties one after another, as they were recorded". Totally unintelligible to the reviewer is the meaning of another statement about the "Egyptologists" who caused "entanglement of all chronological dates" by "clinging to astronomically fixed dates" and thus "caused all dates fixed by real facts to be distorted in order to bring them in accordance with dates which were in

no way ascertained by real facts". To the author the Egyptian wandering year seems to be not a "real fact" and he seems totally unaware of the fact that Egyptian chronology fortunately imposes severe restrictions upon any system of relative chronology of Western Asia.

While the whole chapter on Egypt thus cannot be taken seriously, the author has devoted much care to the discussion of Babylonian chronology. Needless to say, he ignores all possible use of the Ammisaduqa observations of Venus, however little they may prove useful in excluding certain dates. Sidney Smith's statement "that Assyrian years can be equated with Julian years is probably an error" is declared to be "not well founded" though the author's short description of the Assyrian calendar is neither clear nor based on any new evidence. It probably would have been wiser to underline the importance of Sidney Smith's scepticism, which has not yet received enough attention.

To the reader of this Journal, the discussion of the term "*tuppi*" (p. 9) as a time concept will be of interest. The author explains it as a general word like English "term" and derives it from the ordinary meaning of *tuppu* "tablet, contract".

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H. Bozkurt, M. Çığ, H.G. Güterbock. Istanbul Arkeoloji Müzelerinde bulunan Boğazköy tabletleri II. Millî Eğitim Basımevi, Istanbul, 1947. IX+40 pp.

The first volume of this series (IBoT) was published in 1944 and reviewed in JCS I 87-92. It is gratifying to note that the series is being continued. As I did in the case of IBoT I, I am offering here some comments on the new texts.

No. 1: In l. I 4 read ^{DUG}*za-a[l-ḫa-ia-az]* (abl.) or ^{DUG}*za-a[l-ḫa-it]* (instr.): cf.X 40 III 4; XXVII 69 III 8 for the former and II 6 II 10; X 40 III 11; XX 11 II 20; VBoT 3 VI 4, 16; IBoT II 14 I 10 for the latter. The determinative for "vessel" is not found in any of these occurrences. The nominative should be posited as *zalḫai-*; the acc. pl. is *za-al-ḫa-a-ia*, see XXVII 69 III 12. A more precise definition of the kind of vessel concerned, "pitcher", "jug" or the like, is not possible.

The final two sentences of the colophon are interesting. One must read: [*ki-*]*i pár-ku-i TUP-PU* / [*A-*]*WA* ^{GIŠ}ḪUR-*TE-kán ḫa-an-da-an*. Both sentences occur elsewhere, the combination of the two I have only found (badly mutilated) XI 35 VI 29f. The first sentence means "this is a final copy" (see E. Forrer, ZDMG NF 1 178), and the second obviously "true to the original script" (cf. H.G. Güterbock, Symbolae Koschaker 34). *A-NA* ^{GIŠ}ḪUR-*TE* stands for Akk. *ana uṣurte*.

No.2: With the help of X 18 VI 12ff. we have to restore: [*ŠA?*] EZEN ^{2}[AN.TAḪ] ŠUM.SAR *ma-a-an* L[UGAL-*uš*] 3 ^{URU}*Ta-ḫur-pa-za* ^{URU}*Ti-ip-pu*[*-wa*] ^{4}[*ú-iz-zi*] *ta* ^{É}*ḫa-li-tu*[*-wa šal-li a-še-eš-šar*] "when the king comes from Taḫurpa to Tippuwa, there will be a large congegration (assembled) in the ḫ. house ".

No. 3: Cf. KBo IV 13 III 11ff. and II 8 II 15ff.

No. 4: The obv. is similar to the passages quoted under No. 3.

No. 5: With rev. 5 *3-aš* ^{UZU}ÚR-*az-aš?* compare XI 13 V 11f: *še-er-ra-aš-ša-an ŠA* UDU.NITÁ *3* ^{UZU}ÚR and XX 78 III 6f. *še-er-wa-kán* UDU.NITÁ-*az 3-az*. ^{UZU}ÚR-*az*. I do not understand the phonetic complements.

No. 7: The restoration of the two first lines is provided by XI 34 VI 46ff. (colophon), of lines 3 and 4 by, e.g., XI 35 I 8f.

[*ma-a-an* LUGA]L ^{URU}*A-ri-in-n*[*a-az*]

[*A-NA*] ^{URU}*Ḫa-at-tu-ši ú-iz-zi*

[*nu ma-aḫ-ḫ*]*a-an* ^{É}*ḫa-le-en-tu-u-wa*

[*ḫa-aš-ša-an-z*]*i* KUŠ.NÍG.TÁG-*aš-ta uš-ši-ia-an-zi*

"When the king goes from Arinna to Ḫattuša, -

when they open the ḫ. house, they lift the bar(?)".

No. 8: The obverse is identical with X 48 II 12-23 except that the days are differently numbered.

No. 9: The acting person is here DUMU-*aš*, probably the "crown prince". Cf. particularly II 14.

No. 11: Duplicate of XXV 12 VI 9-15.

No. 12: The phrase KÁ.GAL-*aš a-aš-ki* (l. 7) certainly means "outside the gate". The combination has a certain interest because, as is generally admitted now, the basic meaning of *aška-* is "door", and because LUGAL-*an aška/i* (Code Hitt. §§71, 187, 188) is accordingly rendered by "to the king's gate" (see particularly J. Friedrich, OLZ 1923 46 fn. 5). It would be better to say "to the king's door". As the Akkadians distinguished between *daltum* "door", *bābum* "(aperture of a) door" and *abullum* "gate", there must also be three different Hittite words (cf. F. Sommer, Die heth.-akk. Bilingue des Ḫattušili I. 81 fn. 1).

No. 15: For the colophon compare XX 68.

No. 16: For the colophon compare X 31.

No. 17: From KBo II 5 III 41ff. (see A. Götze, Annalen des Muršilis 188f.) it had already been known that at the time of the *purulliya* festival celebrations took place in the *ḫešti* house at Ḫattuša.

No. 19: in l. 2 restore [^{GIS}K]Á-*aš* ^{D}*Ša-li-wa-ni-iš* because of II 8 I 25, II 43, V 24.

No. 20: Probably joins IBo I 22; IBoT II 20 6=IBoT I 22 1.

No. 28: *ar-lu-u*, probably Ḫattian, can now also be read in KUB I 14 II 3.

No. 35: is now also published by Otten in ZA NF 14 137.

No. 36: ibidem.

No. 37: IV 3ff. is duplicate of II 4 IV 9ff.

No. 38: see Otten, ZA NF 14 120 fn. 3.

No. 40: see below on ABoT 37.

No. 43: XX 90 is closely related; this is particularly evident when the reverse of No. 43 is compared with XX 90 IV. In both fragments appear the *ḫapiyaš* people who in XX 90 IV 7 throw off their coats ([^{TÚG}]*i-ik-nu-uš pé-eš-ši-ia-an-zi*). Perhaps

III 6 here should be restored [TUG$_{\check{s}e}$-*ek-nu-u*] š *ḫa-aš-ši-i an-da pí-iṗ-pa-an-z*[*i*]. Compare also the catalogue tablet VIII 69 III 5ff.

No. 49: For the god list cf. E. Laroche, JCS 2 121f.

No. 50 may perhaps fit to No. 59. Cf. X 27 and XXV 50.

No. 56: The sequence ^{D}*Nubadig pí-pí-it-ḫi* [... ^{D}*Ku-*[*pa-pa*, ^{D}*Nubadig ša-al-ma-*[*at-ḫi*]... ^{D}*Ku-pa-pa*, [^{D}*Na-bar-bi* ^{D}]*Šu-wa-la*, [^{D}*Al-la-i* ^{D}*Pi-*]*i-in-kar* continues the list of the gods of Manuzziya given by E. Laroche, JCS 2 131f., but does not yet complete it.

No. 59: see under No. 50.

No. 61: The sequence of gods is the same as in KBo IV 13 II 8ff.

No. 62: For ^{D}*A-li-li* compare *a-li-li* XI 26 II 8 in an analogous context.

No. 71: Cf. KUB II 4. In IV 9 restore [^{D}*Zi-bar-*]*wa$_{a}$* and in IV 18 [^{D}*Ka-taḫ-*]*i-wu$_{u}$-ri*. For the association of Ḫašameliš (III 15, 17) with this group see also ZA NF 14 141 rev. 15.

No. 74: Cf. X 40; XX 11; VBoT 3.

No. 77: might belong to XI 16 or its duplicates XX 28 and XXV 6; cf. also IBoT I 20.

No. 80: Col. VI is transliterated by H. Th. Bossert, Asia 115f. Related texts are XX 8; Bo. 84 (ZA NF 14 135).

No. 84: Cf. KUB I 15; X 89 I 1ff.

No. 91: II 2 restore [^{D}*Wa-*]*še-iz-zi-li*. With col. III compare KUB X 11 V. The instr. DUG$_{GAL}$-*me-et* is noteworthy.

No. 93: Similar texts are VII 17 and XXXI 57; in particular the (measure?) IŠ with loaves of bread recurs there. It is also found in IBoT I 19. The numerals in front of IŠ range from 9 (VII 17 12) to 90 (ibid. 14).

No. 94: Compare XI 20 and its duplicate XI 25 and furthermore here No. 96 and its duplicate X 87. It follows that *kar-za-na-az* (here VI 12) and *kar-za-na-aš* (IBoT II 96 V 12) are case forms of the nom.-acc. *kar-za* (XI 20 I 20 = XI 25 III 14; IBoT II 96 V 7). In other words *karza* (probably neuter) belongs to the group of words, originally *n*-stems, which I have treated in Acta Jutlandica IX/1 (Mélanges Pedersen) 489f. Cancel Deimel, ŠL 376*:16. The word apparently denotes a tool of the US.BAR "weaver" and is used for making thread.

No. 96: See above under No. 94.

No. 101 is a duplicate of XI 34 V 25ff. It becomes now certain that XI 34 V 38 ^{D}*Tu-u-ḫ[a-sa-el]* is to be restored (correct E. Laroche, Recherches sur les noms des dieux hittites 35). The deity also appears in XXV 17 VI 11 and in IBoT II 89 2.

No. 115: Restore with the help of KUB VII 2 IV 4ff.(and I 2ff.) as follows:

3 [*ma-a-an* DIN]GIR.MEŠ *ku-eda-ni* ÚḪ-*an-te-eš*

4 [*nam-ma-a*]*š-ša-an a-pé-e-da-ni* UKÙ-*ši* TÚG*še-e*[*k-nu-uš*]

5 [*ša-ra-a pí-ip-pa-an nu-uš-ši* SISKUR *ki-iš-ša*[*n i-ia-mi*]

"If anybody's gods have been bewitched

or over that man a coat

has been drawn, then I perform the following ritual for him".

No. 118: IV 1-4 is a duplicate of VII 58 I 12-17 and therefore also of Bo 2555 III (see Arch. Or. 6 370 and ZA NF 12 258 fn. 3).

No. 121: Besides XXVI 21 compare IX 38 (and also XXXI 57 II 5?).

No. 122: Lines 4-9 are very close to XXVII 67 II 34ff.

No. 124: Cf. XXV 47.

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Kemal Balkan. Ankara Arkeoloji Müzesinde bulunan Boğazköy tabletleri. Millî Eğitim Basımevi, Istanbul, 1948. XI+36 pp.

In the ruins near Boğazköy fragments of Hittite clay tablets are frequently picked up by peasants. It is gratifying to know that, thanks to the efficiency of the Department of Antiquities of the Turkish Government, they are brought to the Museum in Ankara and still more gratifying to observe that those among them which seem to deserve it are competently published. We owe the present publication (ABoT) to the labor of Dr. Kemal Balkan who was aided by Prof. Hans Gustav Güterbock.

To the remarks which the author has given in his preface (Turkish and German) I add a few observations of my own.

No. 2: The colophon recalls XX 74 where after the title of the tablet queen Puduhepa (this doubtless the correct restoration) is likewise mentioned.

No. 5: The gods worshipped are no doubt ^{D}*Ḫu-[ṷ-ul-la]*, ^{D}*Te-l[e-pí-nu]*, ^{D}ZA-MÀ-MÀ and probably [^{D}UTU.AM]. Cf. II 13 I 31ff.; II 14 II 2ff.; XXV 1 IV 49ff. (=II 5 IV 1ff.); XXV 6 IV 4ff.

No. 6: 18ff. is duplicate of IBoT I 12 1ff.

No. 12: This fragment with its three times repeated LÚ.MEŠ*šá-aḫ-ta-tal-le-e-eš* gives occasion to correct a mistake I committed JCS I 90. There I restored the same word in IBoT I 19 3 incorrectly; cf. furthermore XX 53 V 3, 7,12,17. The last mentioned text shows that in ABoT 12 9 (and consequently also in ll. 4 and 14) LÚ.MEŠ*šá-aḫ-ta-tal-le-e-eš iš-ḫa-mi-ia-an-zi*] "The š. men sing" must be read. There is reason for the belief that the word denotes an official who otherwise appears in ideographic disguise. If it were not for the consistent spelling with *ta-tal* one might think of the possibility to read *šá-aḫ-*^{ta}*tal-le-e-eš* and to combine the word as a nomen actoris with the verb *šaḫ-* "sweep". In that case we might gain the phonetic reading of the LÚŠU.I (cf. JCS 1 83 fn. 12).

No. 13: The obverse can be restored from parallels in X 3; X 54; X 17 and X 18. For the reverse compare X 54 IV and X 56.

No. 20: No. 32 may belong to the same tablet.

No. 21: Is perhaps 25 part of the same tablet?

No. 28 is obviously part of No. 29: 28 6=29 II 23.

No. 29: KUB XXX 38 is part of the same tablet: XXX 38 I 3=ABoT 29 I 22. Beginning

with XXX 38 I 4 the fragment ABoT 30 is a duplicate. In all probability KUB XXX 38a (l.1 there=XXX 38 I 12=ABoT 29 I 31) and KUB XXX 38b (l.2 there=XXX 38 I 19) belong to the latter.

No. 31 is a duplicate of No. 29 II: 31 3 29 6. It helps substantially in the reconstruction of the text. Note that instead of *wa-aḫ-nu-wa-a[n-zi]* 31 6 we read *wa-ar-nu-an-zi* in 29 10; for the interchange between *ḫ* and *r* see Goetze-Pedersen, Muršilis Sprachlähmung 28ff.

No. 32: see above remark to No. 20.

No. 37 is composed in Ḫurrian. The fragment is valuable because it can almost completely be restored. Not only is obv. 15-36 parallel with rev. 17-38 and not only are XXVII 42 and XXIX 8 similar texts, but there also exist straight duplicates: (1) obv. 20-24 is duplicated by XXXII 40 2-5 which, after a diverging paragraph from l.14 on, also parallels ABoT 37 obv. 28-31; (2) rev. 16-27 is duplicated by XXXII 37; (3) obv. 37-43 is duplicated by IBoT II 40 rev. 3-11; (4) it seems as though obv. 36-42 is also duplicated by XXXII 25 IV 5'-11' (l.1'=ABoT 37 obv. 31?). As in the structurally similar texts KUB XXIX 8 and XXVII 42 the characteristic feature of the new text is the following sets of forms

(a)	(b)	(c)	(d)
šeḫala	*šeḫaluš*	*šeḫalulaeš*	
gašla	*gašluš*	*kašlulaeš*	*kašlušellantin*
itkula		*itkulaeš*	*itkušellantin*
ekušša	*ekuššuš*	*ekuššulaeš*	*ekuššellantin*

The forms under (a) are predicative adjectives (see RHA fasc. 35 106f.), those under (b) another form of the same adjectives. Under (c) we have forms of the meaning "let it be what the adjective indicates" (see RHA fasc.35 107). The forms of the final column (d) are all preceded by ergatives in the plural, and when the context is considered it becomes clear that they must be third persons plural imperative of (transitive) verbs "let them make (him/them) what the adjective indicates". This is not the place to go into further details; it may however be pointed out that (1) the text offers the following forms of the same type *ašušellantin, ḫaušellantin, uluḫušellantin, parellantin,* and that (2) we have of *ḫau-* "take" the following forms

ḫa-a-u-ši-el-la-an-ti-in ABoT 37 obv. 20, rev. 21;

ḫu-u-ši-el-la-an-ti-in XXIX 8 III 38.

ḫu-ši-in-na-an-ti XXVII 42 rev. 19.

ḫu-ši-el-la-a-in XXIX 8 IV 13.

The fourth form **ḫu-ši-in-na-a-in* which is not actually attested can safely be reconstrued from the variation between *ni-wu$_u$-u-ši-el-la-an-ti-in* XXIX 8 III 42 and *ni-bu-u-ši-in-na-a-in* XXVII 42 rev. 22. It seems clear that the form in *-ain* is the corresponding third person singular. For the *ll* and *nn* elements see Speiser, Introduction §188; however, his explanation as determinatives of aspect leaves some doubt.

The further remark may be added that the expression *aššuššikkunni* SAL*Taduḫepa* (or its "genitive") "the above mentioned Taduḫepa" appears in ABoT 37 in a context where XXIX 8 inserts in Hittite *na-aš-ta* (or *nu-kán*) EN.SISKUR.SISKUR *ŠUM-an ḫal-za-a-i* "and here he mentions the sacrificer's name". Is Taduḫepa a real person or simply a typical name like "John Doe"?

No. 44: It is gratifying to see KUB XXXI 127 so substantially rebuilt, the more so as it is a text of literary merit.

No. 56: The name of the author of this inscription and his genealogy can hardly be reconstructed different from Mr. Balkan's proposal (p. IX). For various reasons I would, then, assume that Arnuwandaš who figures now as the last king of Ḫatti before its downfall around 1200 was succeded by a brother who bore the name of his great forebear Šuppiluliumaš.

At the end of the volume (Nos. 61-65) Güterbock autographs a small fragment to be added to KBo III 6, one of the main copies of the "Apology of Ḫattušiliš", a small duplicate of KBo V 8 (Muršiliš Annals) from the museum at Kayseri, a fragmentary letter from the excavations at Alacahöyük (so far the only Hittite text found there), and the letter from Maşat which he had published before in a place not easily accessible.

The collection of Hittite tablets here published shows clearly that excavations at the Hittite capital still promise results to the epigraphist. When visiting Boğazköy in 1948 I was told that tablets are being plowed up particularly in the fields on the summit of Büyükkaya. The Department of Antiquities of the Turkish Government would earn the gratitude of international science, were it to test the respective places by a trial excavation.

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